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Status of Atlantic Salmon (*Salmo salar* L.) in Indian Bay Brook, Middle Brook, and Terra Nova River (SFA 5), Northeast Brook, Trepassey (SFA 9), and Northeast River, Placentia (SFA 10), Newfoundland, in 1998

by

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Abstract

The status of Atlantic salmon stocks in 1998 was determined for Indian Bay Brook, Middle Brook, and Terra Nova River in Salmon Fishing Area (SFA 5), Northeast Brook, Trepassey in SFA 9, and Northeast River, Placentia in SFA 10. Total returns of small salmon to Indian Bay Brook and Middle Brook in 1998 increased by 89% and 98% over 1997, the highest since the closure of the commercial Atlantic salmon fishery in 1992 for Middle Brook but the fourth highest for Indian Bay Brook. Returns for both these rivers in 1997 were the lowest of the moratorium years. Total returns of small salmon to Terra Nova River in 1998 were similar to 1997 in which year the second lowest returns of the moratorium years were recorded. Increases in small salmon returns were also recorded for Northeast Brook, Trepassey (82%) and Northeast River, Placentia (22%) in 1998; returns for the former river in 1997 were the lowest of the moratorium years and second lowest for the latter. Returns of large salmon in 1998 decreased from those of 1997 in Middle Brook (25%) and Terra Nova River (26%) but remained similar for Indian Bay Brook (5%). Record high returns of large salmon occurred in Middle Brook in 1997 while for Terra Nova River returns in that year were the second highest recorded. Returns of large salmon to Northeast Brook, Trepassey in 1998 increased by 22% over 1997, still among the lowest of the moratorium years, while returns to Northeast River, Placentia were the highest on record. Conservation egg requirement was achieved in all rivers except Terra Nova River. It should be noted that accessible rearing habitat above the lower Terra Nova River fishway more than doubled with the opening of the area above Mollyguajeck Falls in the early 1990s. Smolt-to-adult survival for Northeast Brook, Trepassey in 1998 (adult year) was 5.0%, an improvement over the 2.9% observed in 1997, but low compared with the record high of 9.2% in 1996. The survival value for 1997 was the lowest of the moratorium years and the second lowest of the entire time series.

Résumé

On a déterminé l'état des stocks de saumons de l'Atlantique en 1998 pour Indian Bay Brook, Middle Brook et Terra Nova River dans la ZPS 5, pour Northeast Brook, Trepassey, dans la ZPS 9 et pour Northeast River, Placentia, dans la ZPS 10. Les remontées totales de petits saumons dans Indian Bay Brook et Middle Brook en 1998 ont augmenté de 89 et 98 % par rapport à l'année 1997, les plus abondantes depuis la fermeture de la pêche commerciale du saumon de l'Atlantique en 1992 pour Middle Brook, mais la quatrième en abondance pour Indian Bay Brook. Les remontées dans ces deux cours d'eau en 1997 ont été les plus basses depuis le début du moratoire. Les remontées totales de petits saumons dans Terra Nova River en 1998 étaient semblables à celles de 1997, année où l'on a enregistré les avant-dernières remontées en importance depuis que le moratoire est en vigueur. On a également enregistré des hausses des remontées de petits saumons pour Northeast Brook, Trepassey, (82 %) et Northeast River, Placentia, (22 %) en 1998; en 1997, les remontées pour celui-là étaient les plus basses et pour celle-ci les avant-dernières depuis le moratoire. En 1998, les remontées de grands saumons ont diminué par rapport à celles de 1997 dans Middle Brook (25 %) et Terra Nova River (26 %), mais sont restées stables pour Indian Bay Brook (5 %). Des remontées record de grands saumons se sont produites dans Middle Brook en 1997, tandis que pour la même année, celles dans Terra Nova River ont été les deuxièmes en importance jamais enregistrées. Les remontées de grands saumons dans Northeast Brook, Trepassey, en 1998 ont augmenté de 22 % par rapport à 1997, encore parmi les plus basses depuis le début du moratoire, tandis que les remontées dans Northeast River, Placentia, ont été sans précédent. L'impératif de la conservation à été atteint dans tous les cours d'eau sauf Terra Nova River. À noter que l'habitat de croissance accessible en amont de la passe migratoire du cours inférieur de Terra Nova River a plus que doublé, avec l'ouverture d'une zone située en amont de Mollyguajeck Falls au début de 1990. La survie de saumonneau à adulte pour Northeast Brook, Trepassey, en 1998 (année d'âge adulte) était de 5 %, pourcentage supérieur aux 2,9 % observé en 1997, mais faible comparativement au record de 9,2 % en 1996. La valeur de survie pour 1997 était la plus faible depuis le début du moratoire et l'avant-dernière de toute la série chronologique.

Introduction

In this paper, we examine the status of Atlantic salmon in Indian Bay Brook, Middle Brook, and Terra Nova River, Bonavista Bay (Salmon Fishing Area (SFA)) 5, Northeast Brook, Trepassey, St. Mary's Bay (SFA 9), and Northeast River, Placentia Bay (SFA 10) in 1998, the seventh year of the commercial salmon fishery moratorium. The location of each river is shown in Figs. 1-5. In this report, detailed assessments are provided for Indian Bay Brook and Northeast Brook, Trepassey for the second time. While Indian Bay Brook is renowned for trophy size brook trout, *Salvelinus fontinalis* (Mitchill), it also supports a population of Atlantic salmon. Northeast Brook, Trepassey has been the focus of a study of optimum spawning requirements for Atlantic salmon since 1984, with smolts and adults being counted annually.

Counts of small and large salmon are used in conjunction with recreational fishery data and biological characteristics data to calculate total river returns and egg depositions. Stock status is evaluated relative to conservation egg requirements for all rivers. Also presented in this document is information on egg-to-smolt survival and smolt-to-adult (sea) survival for Northeast Brook, Trepassey and water temperature and water level data for all rivers.

Management Measures, Past and Present

The introduction of the commercial Atlantic salmon fishery moratorium in insular Newfoundland in 1992 followed a major management plan introduced in 1984 (O'Connell *et al.* 1992a; May 1993), which was modified in 1990 and 1991 to include a commercial fishery quota in each SFA (O'Connell *et al.* MS 1992b). Elements of this management regime continued into the moratorium years. The moratorium placed on the Northern Cod Fishery in 1992, which should have eliminated by-catch in cod fishing gear in SFAs 1-9, continued in 1998. There was a small inshore index cod fishery in this area in September-October, which is outside the main migration period of June-early September for most Atlantic salmon destined for insular Newfoundland rivers. A moratorium was placed cod fishing in SFAs 10-14A in August 1993. In 1997, the cod fishery in SFAs 10 and 11 opened for the first time since 1993 with a TAC of 10000 t; the quota was increased to 20000 t in 1998. This fishery opened in May and continued through the summer into autumn.

A quota on the number of fish that could be retained in the recreational fishery was introduced in each SFA in 1992 and 1993. The quota was assigned for each SFA as a whole as opposed to individual river quotas. Only hook-and-release fishing was permitted after the quota was caught. Recreational fishery quotas were eliminated in 1994. In place of quotas, for insular Newfoundland, the season bag limit for retained small salmon was lowered from eight to six fish, three to be caught prior to July 31 and three after that date. Hook-and-release fishing only was permitted after the bag limit of three was reached in each time period. These measures remained in effect in 1995-97. As in previous years, retention of large salmon was not permitted in insular Newfoundland. Returns of small salmon to many rivers in insular Newfoundland in 1997 were substantially lower than expected (Dempson *et al.* MS 1998; O'Connell *et al.* MS 1998a). As a

result of this and uncertainties regarding levels of future returns, the management plan for 1998 was much more conservative than for previous years. The season bag limit for the retention of small salmon in 1998 was reduced to one, pending the results of an in-season review. As a result of the findings of the in-season review, anglers were allowed to retain an additional three small salmon from July 4 until the end of the angling season. There was a daily hook-and-release limit of two fish. Beginning on July 8, 1998, only the use of barbless hooks was permitted.

Special management measurements were in effect for Terra Nova River in 1998. Hook-and-release fishing only was permitted on the entire river from June 20 to July 10. From July 11 to September 7, only hook-and-release fishing was permitted in the following areas: from 25 metres below to 25 metres above the Old Mill Bench; from 800 metres below Grant's Falls upstream to Second Steady; from 25 metres below the upper fishway, downstream to 800 metres below the upper fishway; all tributaries above Terra Nova Lake dam. An area from 25 metres above the upper fishway to 25 metres below the upper fishway was closed to all angling for the entire season. From July 11 to September 7, all areas not closed or restricted to hook-and-release fishing were open for retention of catch.

Northeast Brook, Trepassey has been closed to angling since 1984 in conjunction with ongoing research activity.

Atlantic Salmon Enhancement - Terra Nova River

Terra Nova River has undergone Atlantic salmon enhancement programs since the early 1950s. A fishway was built around impassable falls located approximately 22 km from the mouth of the river in 1952 (Porter *et al.* 1974). This structure (upper fishway) provided access for anadromous Atlantic salmon upstream as far as the complete obstruction at Mollyguajeck Falls. Colonization of the newly accessible area depended on adults straying from below the fishway. A fishway (lower) was built around falls located approximately 8 km from the mouth of the river in 1954 in order to facilitate the upstream movement of adults. Anadromous Atlantic salmon were introduced into the area above Mollyguajeck Falls (Fig. 3) in 1985-89. Adults were collected from the upper fishway and transferred above the falls by helicopter. In order to allow the progeny of these transferred fish to access their natal areas, passage through Mollyguajeck Falls was made possible by blasting pools in the river bed in 1985. A swim-up fry stocking program utilizing broodstock from the upper fishway was initiated above Mollyguajeck Falls in 1994 and continued in 1998.

The falls in Middle Brook and Northeast River, Placentia, were not complete obstructions and only impeded adult migration during low water conditions. The fishways for these rivers were installed to ease passage during low flows, similar to the situation for the lower Terra Nova River fishway.

Methods

Recreational fishery data and counts of adult salmon in 1998 were compared to two pre-salmon moratorium means (1984-89 and 1986-91). The 1984-89 mean corresponds to years under the major management changes in the commercial fishery in the Newfoundland Region, cited above. The 1986-91 mean incorporates the quota years of 1990 and 1991. The mix of management measures in effect during 1984-89 on the one hand and the imposition of commercial quotas in 1990 and 1991 on the other, should be kept in mind when making evaluations based on the 1986-91 mean. Recreational fishery data in 1998 were also compared to the moratorium mean for 1992-96 (see discussion of the License Stub Return System below) while counts of adult salmon were compared to the mean for 1992-97.

Adult salmon and smolt counting equipment

Adult salmon were counted in traps installed in the fishways located in Middle Brook, lower Terra Nova River, and Northeast River, Placentia. Adult counts in Indian Bay Brook were obtained with the semi-automatic (video tape recording) salmonid Silhouette Imaging and Counting System (Pippy *et al.* 1997) installed in a counting fence. The tunnel for this system was installed in the stream bed immediately outside of and continuous with the upstream fish release gate of a conventional wooden adult trap. Smolt and adult counts were obtained in Northeast Brook, Trepassey with a counting fence and a convertible steel smolt-adult trap (Whelan *et al.* 1989).

Recreational fishery data

Prior to 1997, catch and effort data for each river were collected by Department of Fisheries and Oceans (DFO) River Guardians and processed by DFO Science Branch staff, according to procedures outlined in Ash and O'Connell (1987). Rivers with counting facilities had information separated above and below the counting facilities. Angling data for Middle Brook in 1997 (collected above and below the fishway) were obtained through a creel survey (O'Connell *et al.* MS 1998b). Data for 1997 (for all rivers except Middle Brook) and 1998 (all rivers including Middle Brook) were derived from the License Stub Return System (see O'Connell *et al.* MS 1998b for a description of the methodology). Data for 1998 are preliminary at this stage. It was not possible to apportion information above and below counting facilities with the License Stub Return. This was accomplished for Terra Nova River and Northeast River, Placentia, in 1997 by applying the proportion for above and below for the period 1993-96 to the License Stub Return estimate for the entire river. In 1998, angling data below counting facilities for Middle Brook, Terra Nova River, and Northeast River, Placentia, were provided by River Guardians. Since 1997 and 1998 were the only years for the counting fence in Indian Bay Brook, there was no previous information for above and below the fence. Personnel operating the counting fence estimated that approximately 30% of the number of small salmon retained came from below, which was applied to the 1997 and 1998 License Stub Return estimate for the entire system.

The License Stub Return System for collecting recreational fishery data represents a complete departure from the previous DFO River Guardian method. Details of a comparison of stub data, with DFO River Guardian data for insular Newfoundland rivers for 1994-96, are provided in O'Connell *et al.* (MS 1998b). Overall, estimates of released small and large salmon from the stub were substantially higher than estimates from River Guardians while the two methods were closer with respect to estimates of small salmon retained. This has to be kept in mind when comparing catches in 1997 and 1998 with previous years. There is evidence that effort expenditure was under-reported by the stub method and hence this information will not be used in the present document. Analyses are currently being carried out to adjust for under-reporting. Effort data were available for Middle Brook from the creel survey in 1997.

Data for Maccles Brook were included in the totals for Terra Nova River. Angling data for 1987 were not included in the means because in that year the rivers were closed to angling for nearly the entire season due to drought conditions.

Biological characteristics

Biological characteristics information (obtained by sampling recreational catches) used to calculate egg depositions for small salmon (< 63 cm in length) is shown in Tables 1-4. Since there was no recreational fishery in Northeast Brook, Trepassey, there was no information available on bright (upstream migrating) adult salmon, in year (i). Bright adults were not sampled at the trap because of the small run size involved and the risk of mortality, which might have compromised ongoing research on egg-to-smolt survival. Therefore, kelts were sampled in year (i + 1), and mean fork length (cm) was used in the calculation of egg deposition in year (i) instead of mean weight (kg). These kelts were also sexed using external characteristics. In instances where sample sizes were small (N < 20), the means of the various parameters for either the moratorium period (1992-97 for Northeast River, Placentia and 1992-98 for Middle Brook and Terra Nova River) or the pre-moratorium period (1984-91) were used. Biological characteristics information was not available for Indian Bay Brook; in default, data for nearby Middle Brook were used.

A mean weight of 3.13 kg and a proportion of female value of 0.77 (O'Connell *et al.* MS 1997a) was used for fish ≥ 63 cm in length (large salmon) for all years and for all rivers except Northeast Brook, Trepassey. Mean length and proportion of female from a blended sample of small and large kelts were used for this system.

Fecundity was determined from ovaries collected in the recreational fishery. Ovaries were stored in Gilson's fluid until ovarian tissue had broken down, after which time eggs were transferred to 10% formalin. Eggs, which for the most part were in early stages of development, were counted directly. Relative fecundity values used for all rivers except Indian Bay Brook and Northeast Brook, Trepassey are shown in Table 5. The value used for Indian Bay Brook was that presented in Table 5 for years combined for Middle Brook (1980 eggs/kg). For Northeast Brook, Trepassey, the relative fecundity value (65.6 eggs/cm) used was that for all years combined for nearby Biscay Bay River, from O'Connell *et al.* (MS 1997b). In years when the sample size was small (N < 20), the mean fecundity for all years combined for a given river was used. The same

relative fecundity was used for both small and large salmon.

Total river returns, spawning escapement, and egg deposition

Calculations were performed for small and large salmon separately, except in the case of Northeast Brook, Trepassey, where small and large salmon were combined. Total egg deposition was obtained by summing depositions for small and large salmon for rivers other than Northeast Brook, Trepassey.

Total River Returns

Total river returns (TRR) were calculated as follows:

$$TRR = RC_b + C + HRM_b \quad (1)$$

where,

RC_b = recreational catch below counting facility
C = count of fish at counting facility
HRM_b = hook-and-release mortalities (10% of hook-and-release fish) below counting facility

For Terra Nova River, recreational catch below the fishway did not include that of Maccles Brook.

For the period 1984-96, i.e., prior to the counting fence, TRR for small salmon for Indian Bay Brook was estimated as the ratio of total retained recreational catch (RC_t) and an annual exploitation rate (μ_t) derived by Porter *et al.* (1996)

$$TRR = RC_t/\mu t \quad (2)$$

Spawning Escapement

Spawning escapement (SE) was calculated according to the formula:

$$SE = TRR - RC_t - BR - HRM_t \quad (3)$$

where,

RC_t = total recreational catch
BR = broodstock removal (Terra Nova River in 1994-98)
HRM_t = total hook-and-release mortalities (10% of hook-and-release fish)

Spawning escapement for Indian Bay Brook in 1984-96 was estimated as follows:

$$SE = TRR - RC_t - HRM_t \quad (4)$$

A number of mortalities of small salmon occurred in Northeast River, Placentia (49) and Middle Brook (16) subsequent to being counted in 1996 which were deducted from TRR in equation 3. These mortalities resulted from unusually high flood conditions in Northeast River, Placentia and from modifications to the trap configuration in Middle Brook.

Egg Deposition

Egg deposition (ED) was calculated as follows:

$$ED = SE \times PF \times RF \times MW \quad (5)$$

where,

SE = number of spawners
PF = proportion of females
RF = relative fecundity (no. of eggs/kg)
MW = mean weight of females

For Northeast Brook, Trepassey, as pointed out above, RF was in terms of number of eggs per cm and mean length females was used instead of mean weight (MW). For Terra Nova River, spawning escapements and egg depositions were calculated for the area above the lower fishway, including the area above Mollyguajeck Falls.

The phenomenon of atresia occurs in Atlantic salmon in insular Newfoundland (O'Connell and Dempson MS 1997). Since egg deposition calculations above were based on eggs in early stages of development, they should be regarded as potential egg depositions.

Conservation egg deposition and spawner requirements

The conservation egg deposition and spawner requirements for each river were developed by O'Connell and Dempson (MS 1991a,b) (Table 6). Requirements for Northeast Brook, Trepassey were modified from those presented in O'Connell and Dempson (MS 1991b) based on a more recent survey of available parr rearing habitat. The egg requirement for fluvial parr rearing habitat (Elson 1957) for all rivers was 240 eggs/100 m² (Elson 1975); the requirement for lacustrine habitat was 368 eggs/ha (O'Connell and Dempson 1995). The adult conservation requirement for each river was calculated in terms of small salmon only. Egg deposition from large salmon was considered as a buffer.

Net marks

In 1997 and 1998, adult salmon entering the fishways at Middle Brook and lower Terra Nova River were examined for the incidence of net marks.

Environmental data

Water temperatures were measured at each counting facility with a Ryan TempMentor digital thermograph (in 1984-90) and a Hugrun Seamon digital thermograph (in 1991-98). Water levels were measured near each counting facility each year over a permanent benchmark installed in the river.

Results

Recreational fishery

Catch and effort data for each river are presented in Appendices 1-4. Catches for all years prior to 1992 represent retained catch for the entire angling season. Total catch for 1998 (retained plus released fish) is compared to years prior to 1992 and 1992-96 (1997 data were derived from the License Stub Return System, as seen above, and hence were not included in the means). There was no estimate of released fish during the period of retention of catch in 1992, which could impact on comparisons. The total number of fish retained in 1998 is also shown. Calculation of CPUE in terms of retained fish only was not possible since effort figures apply to both retained and released fish collectively. For reasons pointed out above, effort and CPUE information are not available for 1997 (except for Middle Brook) and 1998.

SFA 5

Numbers of small salmon retained in 1998 in Indian Bay Brook and Middle Brook increased over 1997 but remained well below the means for 1984-89, 1986-91. The number of small salmon retained in Terra Nova River in 1998 was the lowest of the time series. Numbers of large salmon released in 1998 decreased from 1997 for Indian Bay Brook; for Middle Brook there was an increase over 1997 and the 1992-96 mean while for Terra Nova River there was an increase over 1997 but a decrease from the mean.

SFA 10

The number of small salmon retained in Northeast River, Placentia in 1998 increased over 1997, but remained substantially below the record catch in 1996, and was also below the means. The number of small salmon released in 1998 showed an increase over 1997 and the 1992-96 mean. The number of large salmon released in 1998 decreased from 1997.

Counts of adults

SFA 5

Counts of small and large salmon for the Indian Bay Brook counting fence in 1997 and 1998 are shown in Table 7 and Fig. 6. The count of small salmon in 1998 increased by 92% over that of 1997 while counts of large salmon for the two years were similar (-5%). In contrast to the situation for 1997, when the distribution of daily counts was relatively flat, in 1998 there was a distinct peak that occurred around the third week of June (Fig. 7). The highest daily count of large salmon was encountered in the third week of July in 1998, compared to around the end of July in 1997. The median date of return of small salmon in 1998 was in late June while in 1997 this occurred in mid-July; the median for large salmon in 1998 occurred in mid-July compared to late July in 1997 (Fig. 8). The median date of return of small salmon was nearly three weeks earlier than for large salmon in 1998 while in 1997 the difference was just over one week (Fig. 8).

Counts of small and large salmon for the Middle Brook fishway are shown in Table 7 and Fig. 6. The count of small salmon in 1998, the second highest on record, increased over 1997 (97%) and the 1984-89 (162%), 1986-91 (219%), and 1992-97 (65%) means. The count of large salmon was also the second highest on record, and while it decreased from 1997 (25%), it increased substantially over the 1984-89 and 1986-91 means (679 and 1151%), and surpassed the mean for 1992-97 by 45%. The daily count of small salmon peaked around the end of June in 1998, the earliest of the moratorium years (Fig. 9). This compares to late July in 1997. The peak for large salmon in 1998 occurred in late July, a few days earlier than in 1997. The median date of return of small salmon in 1998 (the earliest of the moratorium years) occurred in early July as opposed to the last week in July in 1997, one of the latest years (Fig. 10). The median for large salmon in 1998 was encountered around mid-July, compared to the last week of July in 1997. In 1998, the number of days that the median for large salmon occurred later than for small salmon was second to the high recorded in 1995, while in 1992, the two medians were virtually coincident.

Counts of small and large salmon for the lower Terra Nova River fishway are presented in Table 7 and Fig. 6. The number of small salmon counted in 1998 decreased slightly from 1997 (11%) and the 1992-97 mean (8%) but increased over the 1984-89 (39%) and 1986-91 (54%) means. The count of large salmon in 1998 decreased from 1997 (26%) and the 1992-97 mean (10%) but was well above the 1984-89 (207%) and 1986-91 (192%) means. The count of large salmon in 1997 was the second highest on record. The highest count of small salmon occurred in late June in 1998 as opposed to early September in 1997 (Fig. 11). The late peak in 1997 was due mainly to an accumulation of fish below the fishway as a result of low water levels and their ascension *en masse* when water levels improved; there was a similar accumulation in September of 1998 for the same reason. Aside from the September peak in 1997, the highest daily numbers were encountered in early August. Accumulations of large salmon also occurred in September in both 1997 (second highest peak) and 1998 (highest peak). The median timing for small salmon in 1998 was the earliest (around mid-July) of the moratorium years, compared to early August in 1997, one of the latest years (Fig. 12). The median for large salmon in 1998 occurred around the

third week of July as opposed to early August in 1997, the latest year for the 1992-98 period. The median for large salmon in 1998 was approximately 10 days later than for small salmon, and was the widest separation since 1992; in 1993 they coincided.

SFA 9

Counts of small and large salmon for the Northeast Brook, Trepassey counting fence are shown in Table 8 and Fig. 13. The count of small salmon in 1998 increased over 1997 and the 1992-97 mean but was slightly less than the means for 1984-89 (12%) and 1986-91 (6%), the count for 1997 was the second lowest on record. The count of large salmon increased over 1997 (22%) but remained below the means (61, 45, and 15%, respectively). Daily counts of small and large salmon and dates of median counts are shown in Figs. 14 and 15. The median count of small salmon in 1998 occurred in early July, the earliest of the moratorium years, and was approximately one month earlier than in 1997. The median for of large salmon was encountered around mid-July, also approximately one month earlier than in 1997. The number of days between medians for small and large salmon in 1998 was the third highest since 1992; in 1992 and 1995 they were coincident.

SFA 10

Counts of small and large salmon for the Northeast River, Placentia fishway are shown in Table 8 and Fig. 13. The count of small salmon in 1998 increased over 1997 (18%) and the 1984-89 (46%) and 1986-91 (42%) means but decreased slightly from the 1992-97 mean (7%). The count of large salmon in 1998 was the highest on record, increasing by 55, 1278, 1411, and 206% over 1997 and the means, respectively. The peak count of small salmon occurred in the third week of July in 1998; there was no distinct peak in daily counts of small salmon in 1997 (Fig. 16). Most large salmon ascended the fishway in mid-July in 1998 compared to late July-early August in 1997. There was an accumulation of small and large salmon below the fishway in mid-late August in 1997, similar to the situation described above for Terra Nova River; these fish moved quickly when water conditions improved in late August-early September. The median count of small salmon in 1998 (in the second week of July) was the earliest of the moratorium years; the median for large salmon occurred a few days later and was also the earliest since 1992 (Fig. 17). This compares to around late July for both in 1997. The number of days between medians for small and large salmon in 1998 was one of the lowest of the 1992-98 period while in 1997 the reverse was true.

Total river returns, spawning escapement, and percentage of conservation requirement achieved

SFA 5

Total river returns, spawning escapement, potential egg deposition, and percentage of conservation requirement achieved for Indian Bay Brook, Middle Brook, and Terra Nova River are shown in Table 9. Small salmon total river returns, spawning escapement, and percentage of

conservation requirement achieved for Indian Bay Brook for years prior to 1997 derived using exploitation rates are shown in Table 10. Percentages of conservation egg requirements achieved for Middle Brook and Terra Nova River are also shown in Fig. 18.

The number of small salmon returning to Indian Bay Brook in 1998 increased by 89% over 1997; large salmon returns were similar for the two years. Indian Bay Brook achieved conservation egg requirement in terms of both eggs and small salmon in 1998. During the moratorium, in addition to 1998, conservation requirement for small salmon was met in all years except 1994 and 1997; prior to the moratorium, the requirement was met (or nearly so) in all years except 1986, 1989, and 1991.

Total returns of small salmon to Middle Brook in 1998 increased by 98% over 1997; returns in 1997 were the lowest of the moratorium years. Total returns of large salmon in 1998 decreased from 1997 (25%) but were the second highest on record (the record occurred in 1997). Conservation requirements in terms of both eggs and small salmon were achieved in all moratorium years in Middle Brook (the highest percentage achieved occurred in 1998) but in only one year (1984) prior to the moratorium.

The number of small salmon returning to Terra Nova River in 1998 were similar to those of 1997 in which year the second lowest returns of the moratorium period were recorded. Total returns of large salmon in 1998 decreased by 26% from 1997; returns in 1997 were the second highest on record. The percentages of conservation egg requirement met during the moratorium years for Terra Nova River were generally higher than during pre-moratorium years, with record highs being recorded during the moratorium. The percentage of conservation egg requirement met in 1998 was similar to that of 1997. The percentage of small salmon conservation requirement met in 1998 improved over the low for the moratorium period recorded in 1997.

SFA 9

Total river returns, spawning escapement, potential egg deposition, and percentage of conservation egg requirement achieved for Northeast Brook, Trepassey are shown in Table 11. The percentage of conservation egg requirement achieved is also shown in Fig. 18. Total returns of small salmon increased by 82% over 1997; returns in 1997 were the lowest of the moratorium years. Returns of large salmon increased by 22% over 1997, still among the lowest of the moratorium years. Conservation requirements in terms of both eggs and small salmon were achieved in 1998 and in all years (or nearly so in terms of small salmon) of the time series.

SFA 10

Total river returns, spawning escapement, potential egg deposition, and percentage of conservation egg requirement achieved for Northeast River, Placentia are shown in Table 11. The percentage of conservation egg requirement achieved is also shown in Fig. 18. Total returns of small salmon in 1998 increased over 1997 (22%); returns in 1997 were the second lowest of the moratorium years. Returns of large salmon increased over those of 1997 (55%) and were the

highest on record. Conservation requirements in terms of both eggs and small salmon were achieved in 1998 and all years of the time series.

Smolt counts and biology, Northeast Brook, Trepassey

The number of smolts counted in Northeast Brook, Trepassey in 1998 decreased slightly from 1997 (6%), but was one of the higher counts of the time series (Table 12). Median run timing (day of the year) for 1998 was one of the earliest recorded (Fig. 19).

Information on fork length (cm), whole weight (gm), age (yr), and condition for smolts for the years 1985-98 is shown in Fig. 20. Although there was some annual variation in the means of these parameters over the years, there is no evidence of trends. There was greater annual variation in range of size and condition. Modal smolt age was 4+ years for all years except 1985, 1990, and 1996, when the mode was 3+ years (Fig. 21).

Smolt-to-adult survival, Northeast Brook, Trepassey

Smolt-to-adult survival (which includes repeat spawners) for 1998 (adult year) increased over that observed in 1997 (Table 12 and Fig. 22). The value for 1997 was the second lowest on record, only slightly better than the low observed in 1992 and well below the record high of 9.2% in 1996. Survivals during the moratorium years were either comparable to or only slightly higher than those observed prior to the moratorium. Survival for 1998 was among the lower values observed during the moratorium.

Egg-to-smolt survival, Northeast Brook, Trepassey

Over the period 1986-92, egg deposition in Northeast Brook, Trepassey showed an overall decline (Table 13 and Fig. 23). Egg-to-smolt survivals corresponding to these egg depositions were more or less stable between 1984 and 1991 but the 1992 year-class showed a marked increase. Survival for the 1993 year-class however decreased, being only marginally better than the pre-1992 high observed in 1988. There was a negative relationship between egg-to-smolt survival and egg deposition and also between the number of smolts produced per spawner and number of spawners (Fig. 24). Best survival and smolt production was observed for the 1992 year-class, the year of the lowest egg deposition (expressed as number eggs/100 m^2 of fluvial habitat) (Figs. 23 and 24).

Net marks

The incidence was of net marks for Middle Brook was considerably higher than for Terra Nova River in both 1997 and 1998 (Table 14). Small salmon had a higher incidence of marks than large salmon in Middle Brook while the reverse was true for Terra Nova River. Overall, the percentage of marked fish was lower in 1998 than in 1997 for both rivers.

Environmental conditions

Maximum and minimum daily water temperatures (°C), measured at the counting facility in each river, are shown in Appendices 5-9 and Figs. 25-29. Mean daily water levels measured near each counting facility are presented in Appendices 10-14 and Figs. 30-34. Maximum water temperatures exceeded 25 (°C) on several occasions between late July and mid-August in Indian Bay Brook in 1998; maximum temperatures exceeded 20 (°C) for much of the period of late June-late August. Minimum temperatures dropped below 20 (°C) nearly every day, even when the maximum exceeded 25 (°C). There is no information available for Middle Brook in 1998 because the thermograph ceased to function after only a few days in early June. At the lower Terra Nova River fishway, maximum temperatures in 1998 approached 25 (°C) on a few occasions (mid-July and second week in August) but exceeded 20 (°C) for much of the period from late June to the last week in August. Minimum temperatures exceeded 20 (°C) during several days between mid-July and mid-August. Maximum temperatures in Northeast Brook, Trepassey approached 25 (°C) in early to mid-August in 1998 and surpassed 20 (°C) many times from mid-July to the third week of August. Minimum temperatures were consistently below 20 (°C). In Northeast River, Placentia, maximum temperatures exceeded 25 (°C) during mid-July and mid-August and 20 (°C) for most of the June-August period in 1998. Minimum temperatures were above 20 (°C) on a few occasions.

Lowest water levels in Indian Bay Brook and Middle Brook in 1998 occurred in mid-August; a substantial increase in water level occurred in Indian Bay Brook in early September and in late August-early September in Middle Brook. Water levels were low during mid-late August in Terra Nova River in 1998 but increased rapidly in early September. Water levels in Northeast Brook, Trepassey in 1998, displayed several peaks. Low water levels in Northeast River, Placentia in mid-August 1998, gave way to increases from that time on.

Discussion

With the exception of Terra Nova River and Northeast River, Placentia, total returns of small salmon in 1998 showed a marked improvement over those of 1997. With the possible exception of Northeast Brook, Trepassey, beginning in 1997, it was anticipated that there would be increased returns of small salmon, corresponding to increases in egg deposition levels as a result of the commercial salmon fishery moratorium (Tables 9 and 11). Unexpectedly, total returns in 1997 were either the lowest or among the lowest of the moratorium years. For detailed analyses examining possible reasons for the overall low returns of small salmon in insular Newfoundland in 1997, which includes information and discussion for the rivers in this report, see Dempson *et al.* (MS 1998) and O'Connell *et al.* (MS 1998a). While total returns of small salmon in 1998 improved over numbers recorded in 1997, they remained average for the moratorium period 1992-97. The continuing low sea survival recorded for Northeast Brook, Trepassey is consistent with findings for other rivers distributed throughout insular Newfoundland (O'Connell *et al.* MS 1999), which may have played a major role in levels of small salmon returns in 1998.

The occurrence of net marks in Middle Brook and Terra Nova River was likely the result of encounters with illegal and legal fishing gear in coastal waters and illegal gear in freshwater below the counting facilities. It is not possible to accurately estimate the extent of such removals. Therefore total returns considered in the context of being equivalent to total production during the moratorium have to be regarded as minimum values.

Conservation requirement has never been reached in Terra Nova River. It appears that management measures in effect for Terra Nova River in 1998 were effective in maintaining egg deposition at the 1997 level. Judging from exploitation rates in previous years, had these restrictions on retention of small salmon not been in place in 1998, egg deposition would have been diminished accordingly. It should be noted that accessible rearing habitat above the lower Terra Nova River fishway more than doubled with the opening of the area above Mollyguajeck Falls. The first returns resulting from the adult transfers in 1985-89 were expected beginning in 1990. In the absence of counts of the numbers of adults ascending Mollyguajeck Falls since 1990, it is not possible to assess the results of the adult stocking. Broodstock used for swim-up fry stocking in the area above Mollyguajeck Falls since 1994 were simply deducted from spawning escapement, i.e., no attempt was made at this stage to back-calculate fry into egg equivalents.

Cautions associated with the parameter values used to calculate conservation egg requirement have been discussed previously by O'Connell and Dempson (1995) and will not be dealt with here.

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Table 1. Biological characteristics data for female small salmon and with sexes combined plus unsexed fish by year and for pre-moratorium (1984-91) and moratorium (1992-98) periods for Middle Brook, Bonavista Bay (SFA 5), Newfoundland. WW = whole weight (kg); FL = fork length (cm); RS = repeat spawning grilse.

	Sexes combined plus unsexed									Females						%	
Year	$\bar{X}$ WW	SD	N	$\bar{X}$ FL	SD	N	% RS year of return	% RS smolt class	N	$\bar{X}$ WW	SD	N	$\bar{X}$ FL	SD	N	Female	N
1984	1.48	0.39	155	49.9	4.31	155	7.7	-	12	1.48	0.40	121	49.8	4.43	121	79	121
1985	1.48	0.35	115	49.5	4.46	115	4.4	3.4	5	1.51	0.34	89	50.2	4.20	89	82	89
1986	1.63	0.47	54	52.2	4.56	55	18.2	8.5	10	1.58	0.47	41	52.0	4.75	42	86	42
1987	1.33	0.34	19	49.9	3.14	19	15.8	6.2	3	1.30	0.33	7	49.5	3.36	7	41	7
1988	1.32	0.41	46	49.3	3.47	47	0.0	0.0	0	1.37	0.51	22	49.7	3.82	22	71	22
1989	1.48	0.30	9	51.5	4.37	15	26.7	7.8	4	1.80		1	53.3	0.35	2	100	2
1990	1.67	0.24	16	52.3	2.39	16	25.0	26.7	4	1.69	0.27	11	52.7	2.67	11	85	11
1991	1.50	0.45	11	53.4	4.82	11	9.1	7.7	1	1.40	0.50	4	51.5	5.34	4	50	4
1992	1.64	0.43	78	53.6	3.96	93	8.2	37.5	6	1.74	0.40	37	54.1	3.27	48	83	48
1993	1.72	0.44	120	53.7	4.38	137	0.8	1.5	1	1.65	0.42	71	53.2	4.40	79	76	79
1994	1.78	0.40	72	53.2	3.61	73	1.6	0.8	1	1.75	0.33	33	53.0	3.42	34	74	34
1995	1.55	0.45	83	51.3	4.11	83	2.5	3.1	2	1.47	0.34	33	51.5	4.31	33	62	33
1996	1.96	0.42	73	54.2	3.74	73	15.7	12.5	11	1.95	0.38	41	54.2	3.58	41	82	41
1997	1.73	0.42	51	54.1	4.67	51	3.9	3.3	2	1.72	0.43	40	53.8	4.67	40	81	42
1998	1.78	0.56	19	54.2	4.92	19	15.8	5.8	3	1.63	0.51	15	53.3	4.76	15	88	15
Pre-moratorium 1984-91	1.48	0.40	425	50.2	4.34	433	9.1	8.6	39	1.50	0.40	296	50.4	4.34	298	78	298
Moratorium 1992-98	1.73	0.45	496	53.4	4.21	529	5.4	9.2	26	1.71	0.42	270	53.4	4.10	290	77	292

Table 2. Biological characteristics data for female small salmon and with sexes combined plus unsexed fish by year and for pre-moratorium (1984-91) and moratorium (1992-98) periods for Terra Nova River, Bonavista Bay (SFA 5), Newfoundland. WW = whole weight (kg); FL = fork length (cm); RS = repeat spawning grilse.

	Sexes combined plus unsexed									Females						%	
Year	$\bar{X}$ WW	SD	N	$\bar{X}$ FL	SD	N	% RS year of return	% RS smolt class	N	$\bar{X}$ WW	SD	N	$\bar{X}$ FL	SD	N	Female	N
1984	1.59	0.40	118	50.2	4.43	118	12.7	-	15	1.57	0.36	73	50.2	3.74	73	74	73
1985	1.47	0.35	128	51.0	3.99	141	11.4	13.4	16	1.47	0.37	18	51.8	4.42	29	71	30
1986	1.70	0.39	99	53.4	3.72	99	29.6	18.8	29	1.62	0.36	36	52.6	3.65	36	67	36
1987	1.56	0.34	59	51.9	3.60	58	18.6	13.7	11	1.52	0.32	36	51.5	3.48	35	72	36
1988	1.81	0.40	47	52.8	3.67	46	31.9	23.8	15	1.70	0.65	4	50.0	5.72	4	57	4
1989	1.67	0.33	32	51.3	3.78	32	22.6	17.9	7							0	0
1990	1.65	0.36	50	52.0	3.86	50	10.6	17.2	5	1.70	0.39	5	51.0	4.47	5	100	5
1991	1.43	0.39	29	51.3	3.07	29	6.9	4.5	2	1.00	0.00	2	49.5	4.95	2	100	2
1992	1.76	0.37	84	53.0	3.65	95	1.1	3.6	1	1.30	0.30	6	49.3	2.64	6	75	6
1993	1.70	0.36	49	54.0	3.57	49	4.2	2.2	2	1.63	0.40	12	53.0	4.55	12	80	12
1994	1.80	0.42	82	54.8	3.72	83	10.4	1.5	8	1.75	0.50	15	55.0	5.33	16	84	16
1995	1.68	0.42	67	53.4	4.25	67	15.4	12.7	10	1.58	0.45	21	52.8	5.11	21	68	21
1996	1.71	0.42	63	53.7	4.27	63	13.1	12.7	8	1.57	0.39	19	52.4	4.53	19	76	19
1997	1.55	0.27	23	53.2	4.00	23	13.0	5.4	3	1.43	0.14	4	52.7	5.12	4	100	4
1998	1.50	0.14	2	51.5	-	2	0.0	0.0	0	1.60	-	1	51.5	-	1	50	1
Pre-moratorium																	
1984-91	1.60	0.39	562	51.6	4.04	573	17.5	15.6	100	1.56	0.38	174	51.2	3.91	184	72	186
Moratorium																	
1992-98	1.72	0.39	370	53.7	3.91	382	8.8	5.4	32	1.59	0.42	78	52.9	4.83	79	76	79

Table 3. Biological characteristics data for female small salmon kelts and with sexes combined plus unsexed fish by year and for pre-moratorium (1985-91) and moratorium (1992-98) periods for Northeast Brook, Trepassey (SFA 9), Newfoundland. FL = fork length (cm); RS = repeat spawning grilse.

	Sexes combined plus unsexed						Females			%	
Year	$\bar{X}$ FL	SD	N	% RS year of return	% RS smolt class	N	$\bar{X}$ FL	SD	N	Female	N
1985	55.0	4.88	16	6.7	-	1	57.6	5.94	4	25	4
1986	53.7	4.35	86	7.2	30.0	6	52.6	3.59	68	79	68
1987	54.3	3.63	104	13.7	14.4	13	53.7	3.57	83	80	83
1988	53.1	4.70	23	0.0	0.0	0	53.4	1.95	13	57	13
1989	52.4	4.05	63	8.6	18.5	5	52.3	4.16	48	77	49
1990	52.4	5.66	21	0.0	0.0	0	52.3	5.94	19	90	19
1991	55.6	3.69	55	5.9	15.0	3	54.9	3.64	43	78	43
1992	55.6	3.85	41	7.7	5.9	3	55.3	3.98	36	88	36
1993	57.6	2.79	33	14.8	10.0	4	57.4	2.83	27	82	27
1994	56.0	3.80	42	5.7	8.0	2	55.3	3.72	31	79	31
1995	54.5	3.97	44	9.3	10.8	4	54.8	3.41	37	84	37
1996	56.4	4.82	65	7.5	9.3	4	55.8	4.52	54	83	54
1997	56.7	6.39	39	17.6	10.9	6	56.8	6.80	34	88	35
1998	56.2	4.62	54	8.3	12.5	4	56.4	4.72	48	89	48
*Pre-moratorium 1984-91	54.1	4.24	409	8.2	11.1	31	53.6	4.02	314	77	315
*Moratorium 1992-98	56.2	4.62	277	10.0	9.6	24	56.0	4.59	231	84	232

*These time periods reflect the year of adult return, e.g., kelts sampled in 1998 returned as adults in 1997.

Table 4. Biological characteristics data for female small salmon and with sexes combined plus unsexed fish by year and for pre-moratorium (1984-91) and moratorium (1992-97) periods for Northeast River, Placentia Bay (SFA 10), Newfoundland. WW = whole weight (kg); FL = fork length (cm); RS = repeat spawning grilse.

	Sexes combined plus unsexed									Females						%	
Year	$\bar{X}$ WW	SD	N	$\bar{X}$ FL	SD	N	% RS year of return	% RS smolt class	N	$\bar{X}$ WW	SD	N	$\bar{X}$ FL	SD	N	Female	N
1984	1.50	0.18	25	52.1	2.40	27	3.7	-	1	1.51	0.19	22	52.2	2.32	24	89	24
1985	1.55	0.24	51	51.6	3.26	51	7.8	13.3	4	1.56	0.24	47	51.8	3.25	47	92	47
1986	1.67	0.25	68	53.1	2.39	69	2.9	4.1	2	1.69	0.25	63	53.3	2.36	63	93	63
1987	1.40		1	52.6	5.09	2	0.0	0.0	0	1.40		1	49.0		1	100	1
1988	1.61	0.27	44	52.6	3.38	43	6.8	60.0	3	1.63	0.27	33	52.8	3.56	33	94	33
1989	1.71	0.22	24	53.7	2.85	25	8.0	4.7	2	1.72	0.24	19	53.9	2.64	19	95	19
1990	1.60	0.31	49	54.6	2.32	49	4.1	8.0	2	1.56	0.29	40	54.4	2.33	40	87	40
1991	1.00		1	47.5		1	0.0	0.0	0	1.00		1	47.5		1	100	1
1992			0	53.5	2.95	10	0.0	0.0	0			0	53.6	3.13	9	100	9
1993	1.83	0.31	23	54.2	3.08	24	4.8	9.1	1	1.76	0.33	10	52.9	1.97	10	83	10
1994	1.62	0.44	30	55.2	3.14	30	40.9	31.0	9	1.73	0.24	5	55.0	2.69	5	100	5
1995	1.77	0.47	48	55.4	3.76	48	31.1	51.9	14	1.72	0.37	25	54.7	3.21	25	100	25
1996	1.83	0.44	71	55.5	3.71	70	30.0	40.4	21	1.81	0.42	45	55.3	3.45	44	98	45
1997	1.87	0.30	44	54.3	2.81	44	4.9	3.9	2	1.88	0.27	31	54.2	2.48	31	94	31
Pre-moratorium 1984-91	1.61	0.26	263	52.9	2.96	267	5.2	12.9	14	1.61	0.26	226	53.0	2.91	228	92	228
Moratorium 1992-97	1.80	0.41	216	55.0	3.41	226	22.5	19.4	47	1.80	0.36	116	54.6	3.07	124	96	125

Table 5. Relative fecundity values used to calculate egg depositions for each river in SFAs 5 and 10.

River	Year	Relative fecundity (No. eggs/Kg)	N
SFA 5			
Middle Brook	1984	1896	102
	1985	1993	84
	1986	1955	36
	1987	2160	5
	1988	2259	10
	1990	1896	10
	1993	2150	31
	Years combined	1980	278
Terra Nova River	1984	1709	46
	1985	2163	7
	1986	1410	15
	1987	2323	3
	1990	2281	5
	1993	1794	8
	Years combined	1761	84
SFA 10			
Northeast River, Placentia	1984	2332	21
	1985	2205	39
	1986	2282	45
	1988	2472	34
	1990	2500	41
	1993	2144	5
	Years combined	2352	186

Table 6. Atlantic salmon conservation requirement for each river in terms of eggs and small salmon.

River	Conservation requirement	
	Eggs (Millions)	Small salmon (No.)
SFA 5		
Middle Brook	2.342	1012
Terra Nova River	14.303	7094
SFA 9		
Northeast Brook, Trepasssey	0.144	51
SFA 10		
Northeast River, Placentia	0.719	224

Table 7. Counts of Atlantic salmon at Indian Bay Brook counting fence 1997-98, Middle Brook fishway 1974-98, and lower Terra Nova River fishway 1978-98, Bonavista Bay (SFA 5). Partial counts are in parentheses and are not included in means.

	Indian Bay Brook		Middle Brook		Terra Nova River	
Year	Small	Large	Small	Large	Small	Large
1974			(770)	(77)		
1975			(1119)	(9)		
1976						
1977						
1978			1403	16	810	20
1979			(1350)	(54)	569	170
1980			1712	91	843	39
1981			2414	39	1115	90
1982			1281	20	963	19
1983			1195	75	1210	57
1984			1379	57	1233	107
1985			904	27	1557	112
1986			1036	15	1051	140
1987			914	19	974	56
1988			772	14	1737	206
1989			496	19	1138	142
1990			745	13	1149	144
1991			562	14	873	114
1992			1182	43	1443	270
1993			1959	87	(2713)	(470)
1994			1513	90	1571	242
1995			1139	168	2258	634
1996			1751	161	2005	464
1997	1375	352	1221	262	1577	527
1998	2636	336	2405	196	1780	390
$\bar{X}$ 84-89			917	25	1282	127
95% LCL			610	8	965	75
95% UCL			1223	42	1598	179
N			6	6	6	6
$\bar{X}$ 86-91			754	16	1154	134
95% LCL			540	13	835	83
95% UCL			969	18	1473	185
N			6	6	6	6
$\bar{X}$ 92-97			1461	135	1928	435
95% LCL			1105	53	1410	276
95% UCL			1816	217	2446	593
N			6	6	6	6

Table 8. Counts of Atlantic salmon at the Northeast Brook, Trepassey counting fence, St. Mary's Bay (SFA 9), 1984-98, and the Northeast River fishway, Placentia Bay (SFA 10), 1974-98. Partial counts are in parentheses and are not included in means.

	Northeast Brook, Trepassey		Northeast River, Placentia	
Year	Small salmon	Large salmon	Small salmon	Large salmon
1974			223	9
1975			(186)	(36)
1976			294	56
1977				
1978			390	32
1979			454	37
1980			433	34
1981			334	62
1982			86	36
1983			233	22
1984	89	33	419	44
1985	124	41	384	0
1986	158	30	725	39
1987	91	30	325	16
1988	97	19	543	11
1989	62	18	706	15
1990	71	9	551	25
1991	99	13	353	8
1992	49	10	921	46
1993	79	17	847	65
1994	99	15	677	70
1995	80	12	663	74
1996	73	15	1225	123
1997	50	9	641	185
1998	91	11	756	287
$\bar{X}$ 84-89	104	29	517	21
95% LCL	69	19	339	3
95% UCL	138	38	695	39
N	6	6	6	6
$\bar{X}$ 86-91	96	20	534	19
95% LCL	61	11	356	7
95% UCL	132	29	711	31
N	6	6	6	6
$\bar{X}$ 92-97	72	13	829	94
95% LCL	51	10	594	40
95% UCL	92	16	1064	148
N	6	6	6	6

Table 9. Total river returns, spawning escapement, and percentage of conservation requirement achieved in terms of small salmon and eggs for Indian Bay Brook 1997-98, Middle Brook and Terra Nova River 1984-98, Bonavista Bay (SFA 5).

	Total returns		Prop.	Spawning escapement		Egg deposition (Millions)		% cons. req. achieved		Eggs per
Year	Small	Large	Large	Small	Large	Small	Large	Small	Eggs	100 sq. m
				Indian Bay Brook						
1997	1439	353	0.197	1228	351	3.178	1.673	60	106	1256
1998*	2716	336	0.110	2455	336	6.400	1.600	119	175	2072
				Middle Brook						
1984	1675	57	0.033	1265	57	2.804	0.260	125	131	1161
1985	1283	27	0.021	745	27	1.838	0.130	74	84	745
1986	1547	15	0.010	758	15	2.014	0.071	75	89	789
1987	1053	19	0.018	866	19	2.006	0.091	86	90	794
1988	1337	14	0.010	629	14	1.211	0.067	62	55	484
1989	626	19	0.029	461	19	1.068	0.091	46	49	439
1990	1070	13	0.012	721	13	1.670	0.062	71	74	656
1991	763	14	0.018	485	14	1.124	0.067	48	51	451
1992	1563	43	0.027	1140	43	3.260	0.205	113	148	1312
1993	2247	88	0.038	1909	84	5.148	0.436	189	238	2115
1994	1844	90	0.047	1423	90	3.648	0.429	141	174	1544
1995	1448	168	0.104	1037	168	1.872	0.801	102	114	1012
1996	2112	161	0.071	1605	161	5.081	0.767	159	250	2215
1997	1287	262	0.169	1209	262	3.335	1.249	119	196	1736
1998*	2549	196	0.072	2397	195	6.249	0.928	237	306	2718
				Terra Nova River						
1984	1534	107	0.065	1100	107	2.184	0.440	16	18	80
1985	2012	112	0.053	1431	112	2.830	0.475	20	23	101
1986	1459	140	0.088	974	140	1.817	0.593	14	17	74
1987	1404	56	0.038	940	56	1.812	0.237	13	14	63
1988	2114	206	0.089	1617	206	3.198	0.873	23	28	125
1989	1377	142	0.093	1085	142	2.146	0.602	15	19	84
1990	1518	144	0.087	1052	144	2.081	0.610	15	19	82
1991	1127	114	0.092	815	114	1.612	0.483	11	15	64
1992	1780	270	0.132	1371	270	2.899	1.144	19	28	124
1993	3050	472	0.134	2620	467	5.540	1.977	37	53	230
1994	2035	246	0.108	1305	232	2.759	0.985	18	26	115
1995	2638	638	0.195	1835	587	3.881	2.486	26	45	195
1996	2575	472	0.155	1577	429	3.334	1.818	22	36	158
1997	1800	528	0.227	1137	498	2.419	2.109	16	32	139
1998*	1815	390	0.177	1347	389	2.866	1.647	19	32	138

*Preliminary

Table 10. Total river returns, spawning escapement, and percentage of conservation requirement achieved in terms of small salmon for Indian Bay Brook, 1984-98. Information for 1984-96 was derived using an estimated angler exploitation rate (see text). A hook-and-release mortalilty of 10% was used in the calculation of spawning escapement, 1993-98.

Year	Total returns	Spawning escapement	% cons. req. achieved
		Indian Bay Brook	
1984	4192	3647	177
1985	3086	2407	117
1986	1685	1230	60
1987	2267	2063	100
1988	2764	1990	97
1989	1879	1616	79
1990	3176	2636	128
1991	1411	1143	56
1992	2500	2150	105
1993	7286	6753	329
1994	2445	1839	89
1995	4553	3842	187
1996	3241	2687	131
1997	1439	1228	60
1998*	2716	2455	119

*Preliminary

Table 11. Total river returns, spawning escapement, and percentage of conservation requirement achieved in terms of small salmon and eggs for Northeast Brook Trepassey, St. Mary's Bay (SFA 9), and Northeast River, Placentia Bay (SFA 10), 1984-97.

	Total returns		Prop.	Spawning escapement		Egg deposition (Millions)	% cons. req. achieved		Eggs per
Year	Small	Large	Large	Small	Large	Sm.+ Lg.	Small	Eggs	100 sq. m
				Northeast Brook, Trepassey					
1984	89	33	0.270	89	33	0.330	175	229	594
1985	124	41	0.248	124	41	0.450	243	312	809
1986	158	30	0.160	158	30	0.530	310	368	953
1987	91	30	0.248	91	30	0.328	178	227	589
1988	97	19	0.164	97	19	0.306	190	213	551
1989	62	18	0.225	62	18	0.250	122	173	449
1990	71	9	0.113	71	9	0.225	139	156	404
1991	99	13	0.116	99	13	0.358	194	249	644
1992	49	10	0.169	49	10	0.182	96	126	328
1993	79	17	0.177	79	17	0.279	155	193	501
1994	99	15	0.132	99	15	0.344	194	239	619
1995	80	12	0.130	80	12	0.280	157	194	503
1996	73	15	0.170	73	15	0.282	143	196	507
1997	50	9	0.153	50	9	0.194	98	135	349
1998*	91	11	0.108	91	11	0.315	178	218	566

	Total returns		Prop.	Spawning escapement		Egg deposition (Millions)		% cons. req. achieved		Eggs per
Year	Small	Large	Large	Small	Large	Small	Large	Small	Eggs	100 sq. m
					Northeast River, Placentia					
1984	459	44	0.087	389	44	1.219	0.247	174	204	1084
1985	519	0	0.000	346	0	1.095	0.000	154	152	810
1986	879	39	0.042	645	39	2.313	0.214	288	352	1870
1987	350	16	0.044	317	16	1.104	0.091	142	166	884
1988	637	11	0.017	451	11	1.708	0.065	201	247	1312
1989	809	15	0.018	599	15	2.087	0.085	267	302	1606
1990	699	25	0.035	526	25	1.785	0.150	235	269	1431
1991	368	8	0.021	349	8	1.216	0.045	156	175	933
1992	956	46	0.046	919	46	3.732	0.260	410	555	2953
1993	980	65	0.062	842	65	3.419	0.368	376	527	2801
1994	710	70	0.090	670	70	2.721	0.396	299	434	2306
1995	774	74	0.087	646	74	2.613	0.419	288	422	2243
1996	1420	123	0.080	1102	123	4.598	0.696	492	736	3916
1997	723	185	0.204	592	182	2.462	1.029	264	486	2582
1998*	885	287	0.245	722	285	2.932	1.615	322	632	3364

*Preliminary

Table 12. Atlantic salmon smolt-to-adult survival (back to the river) for Northeast Brook, Trepassey (SFA 9).

	Northeast Brook (Trepassey)		
Year (i)	Smolts year i	Small Salmon year i + 1	% Survival
1986	1117	91	8.1
1987	1404	97	6.9
1988	1692	62	3.7
1989	1708	71	4.2
1990	1902	99	5.2
1991	1911	49	2.6
1992	1674	79	4.7
1993	1849	99	5.4
1994	944	80	8.5
1995	792	73	9.2
1996	1749	50	2.9
1997	1829	91	5.0
1998	1727		

Table 13. Estimates of egg deposition, smolt production by year class, and egg-to-smolt survival for Northeast Brook, Trepassey.

Year-class (eggs)	Estimated egg deposition (no.)	Smolt production (no.)	Survival (%)	Eggs/100 m^2
1984	330308	1604	0.49	594
1985	449780	1611	0.36	809
1986	529817	2442	0.46	953
1987	327601	1476	0.45	589
1988	306446	1787	0.58	551
1989	249768	1232	0.49	449
1990	224730	816	0.36	404
1991	358191	1221	0.34	644
1992	182172	1985	1.09	328
1993	278606	(1732)[1]	0.62	501

[1]To age 4 smolts in 1998

Table 14. Incidence of net marks on salmon examined in Middle Brook and Terra Nova River, 1997-98.

River	Year	Fish checked			Number net marked			% Net marked		
		Small	Large	Total	Small	Large	Total	Small	Large	Total
Middle Brook	1997	1141	242	1383	196	23	219	17.2	9.5	15.8
	1998	1055	89	1144	128	5	133	12.1	5.6	11.6
Terra Nova River	1997	1335	509	1844	34	19	53	2.5	3.7	2.9
	1998	1228	239	1467	12	6	18	1.0	2.5	1.2

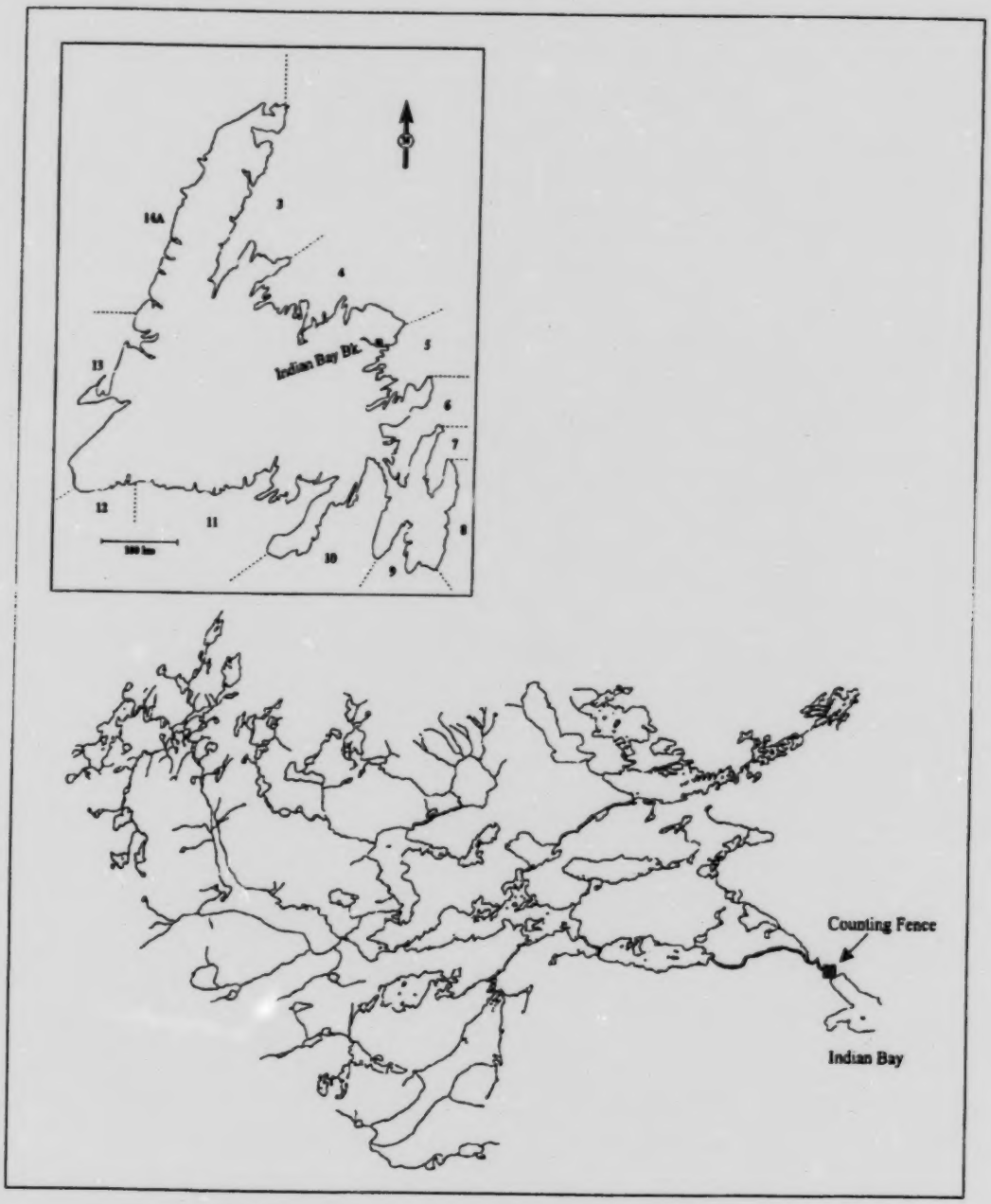

Fig. 1. Map showing the Indian Bay Brook watershed and location of the counting fence in the lower river (square symbol). Inset shows the Salmon Fishing Areas in Newfoundland and the location of Indian Bay Brook.

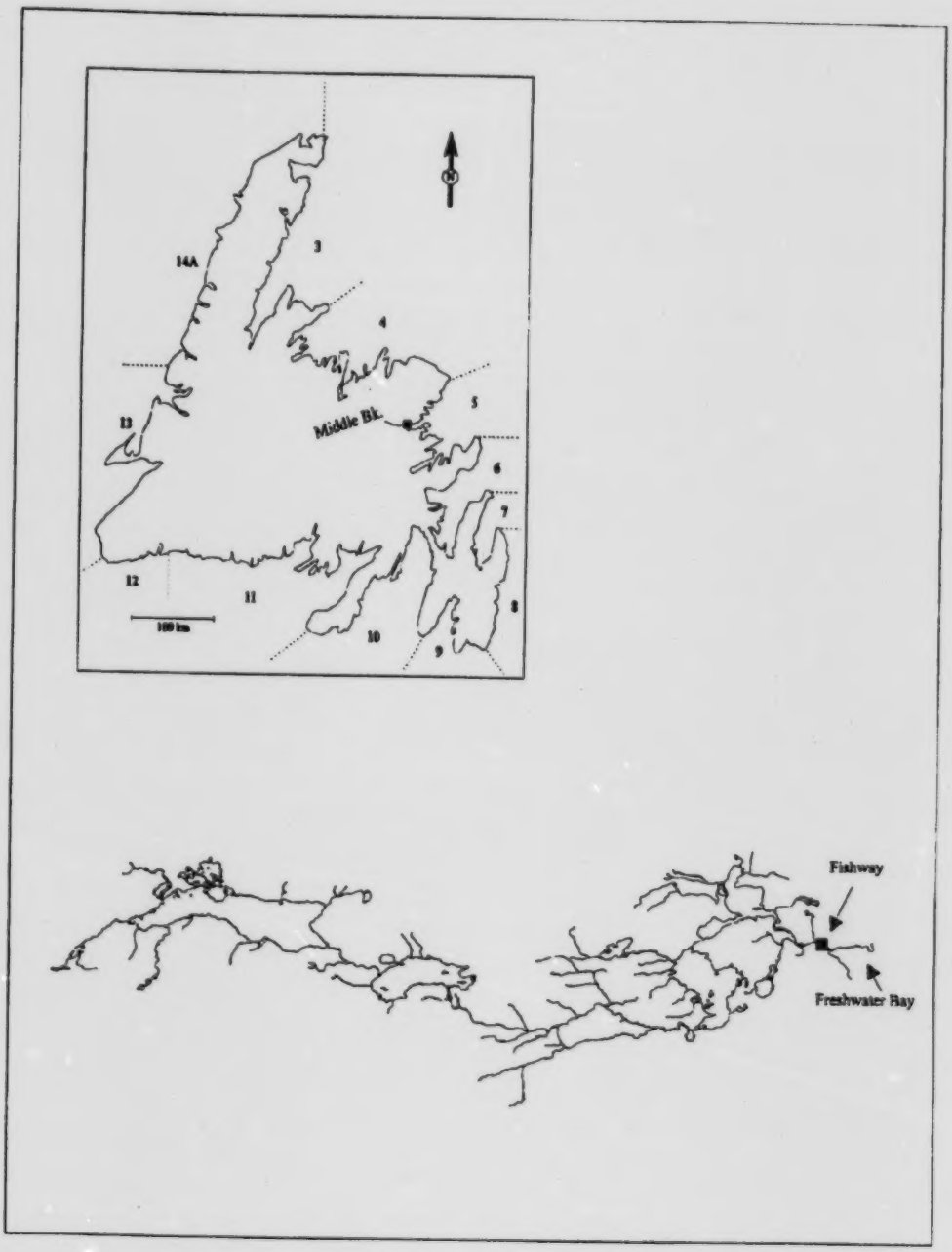

Fig. 2. Map showing the Middle Brook watershed and location of the fishway (square symbol). Inset shows the Salmon Fishing Areas in Newfoundland and the location of Middle Brook.

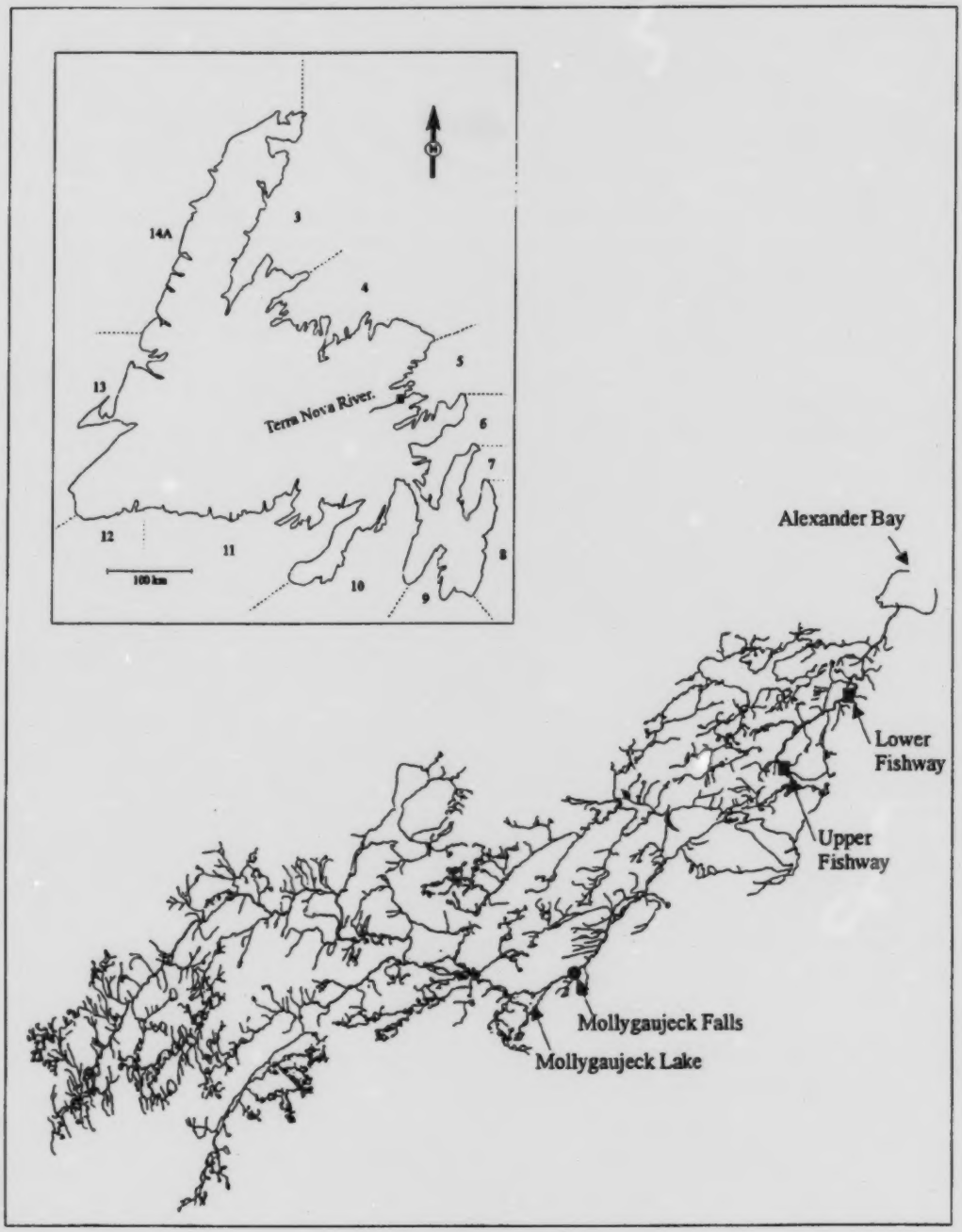

Fig. 3. Map showing the Terra Nova River watershed, location of the fishways (square symbol) and Mollygaujeck Falls (circle). Inset shows the Salmon Fishing Areas in Newfoundland and the location of Terra Nova River.

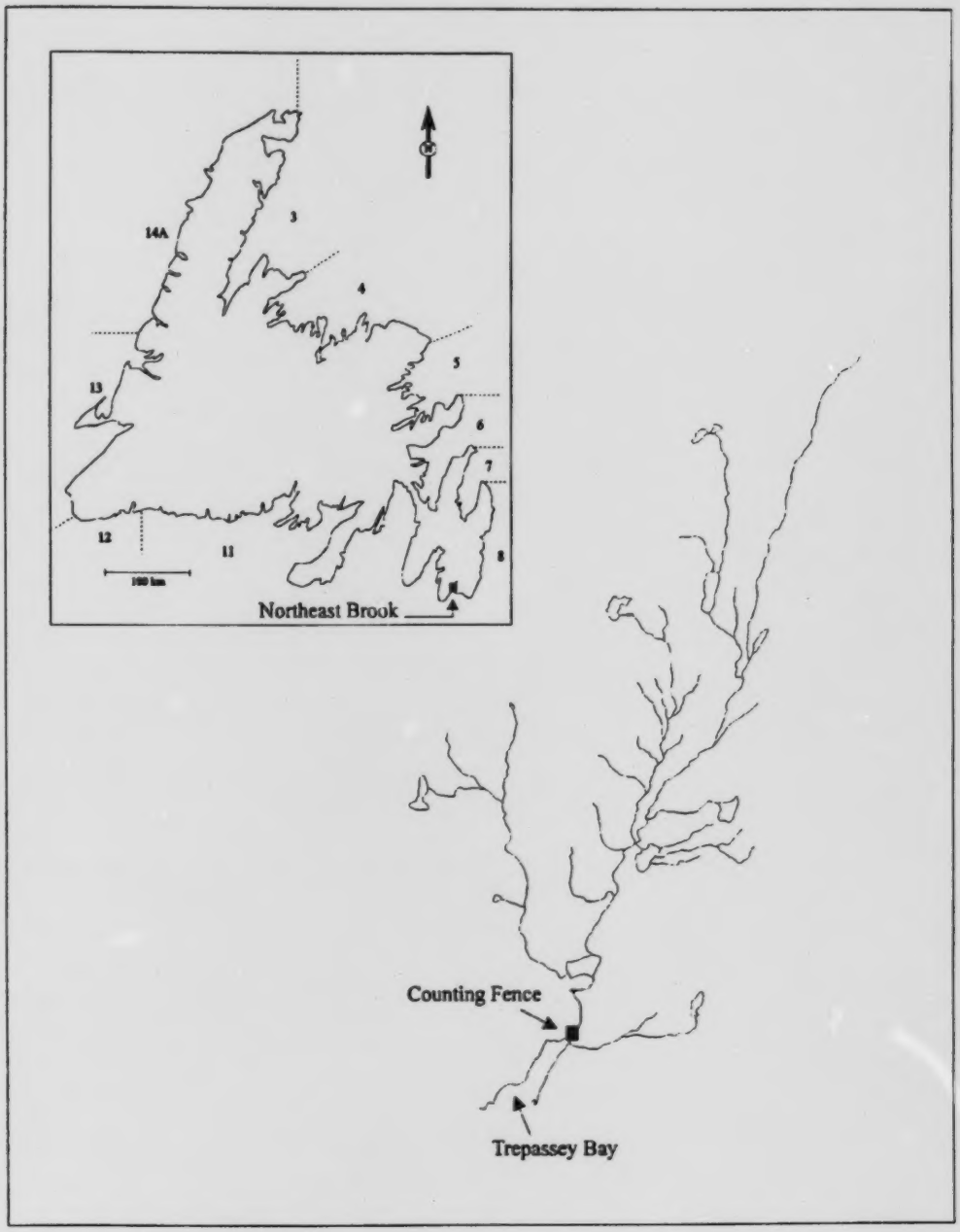

Fig. 4. Map showing the Northeast Brook (Trepassey) watershed and location of the counting fence (square symbol). Inset shows the Salmon Fishing Areas in Newfoundland and the location of Northeast Brook (Trepassey).

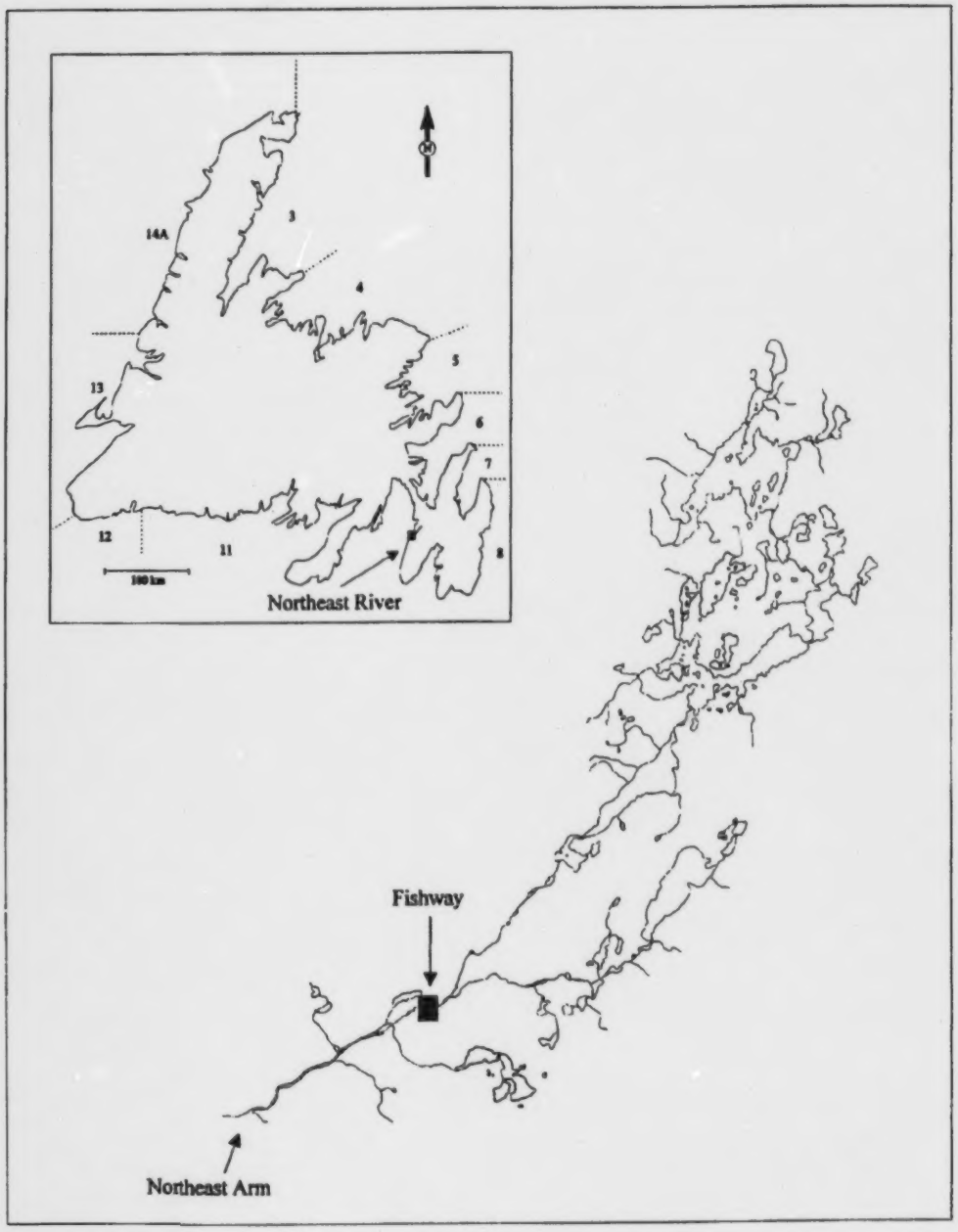

Fig. 5. Map showing the Northeast River (Placentia) watershed and location of the fishway (square symbol). Inset shows the Salmon Fishing Areas in Newfoundland and the location of Northeast River (Placentia).

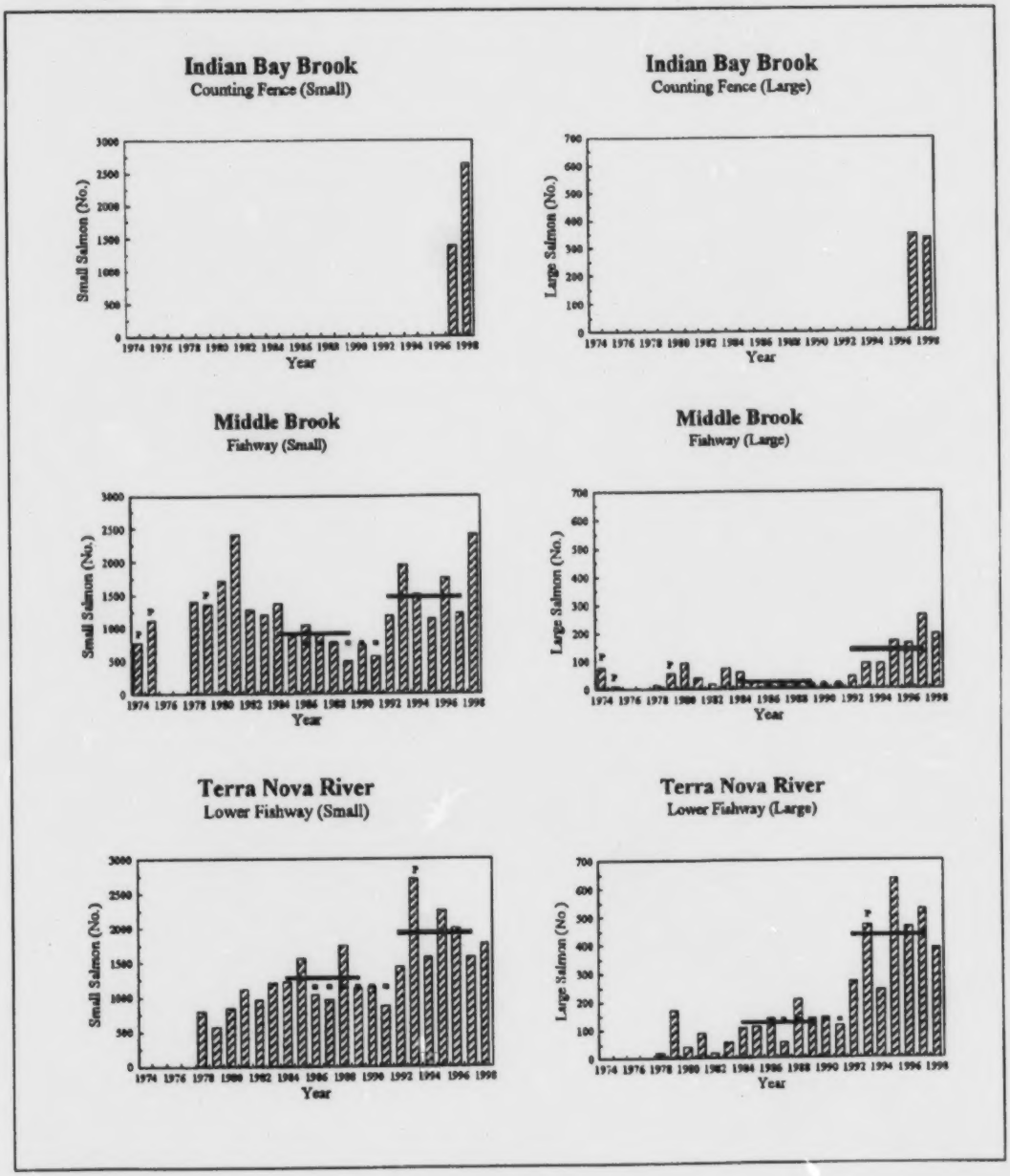

Fig. 6. Counts of small and large salmon at the Indian Bay Brook counting fence, lower Terra Nova River fishway and Middle Brook fishway, 1974-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean and the thick solid line the 1992-97 mean. P=partial count not included in means.

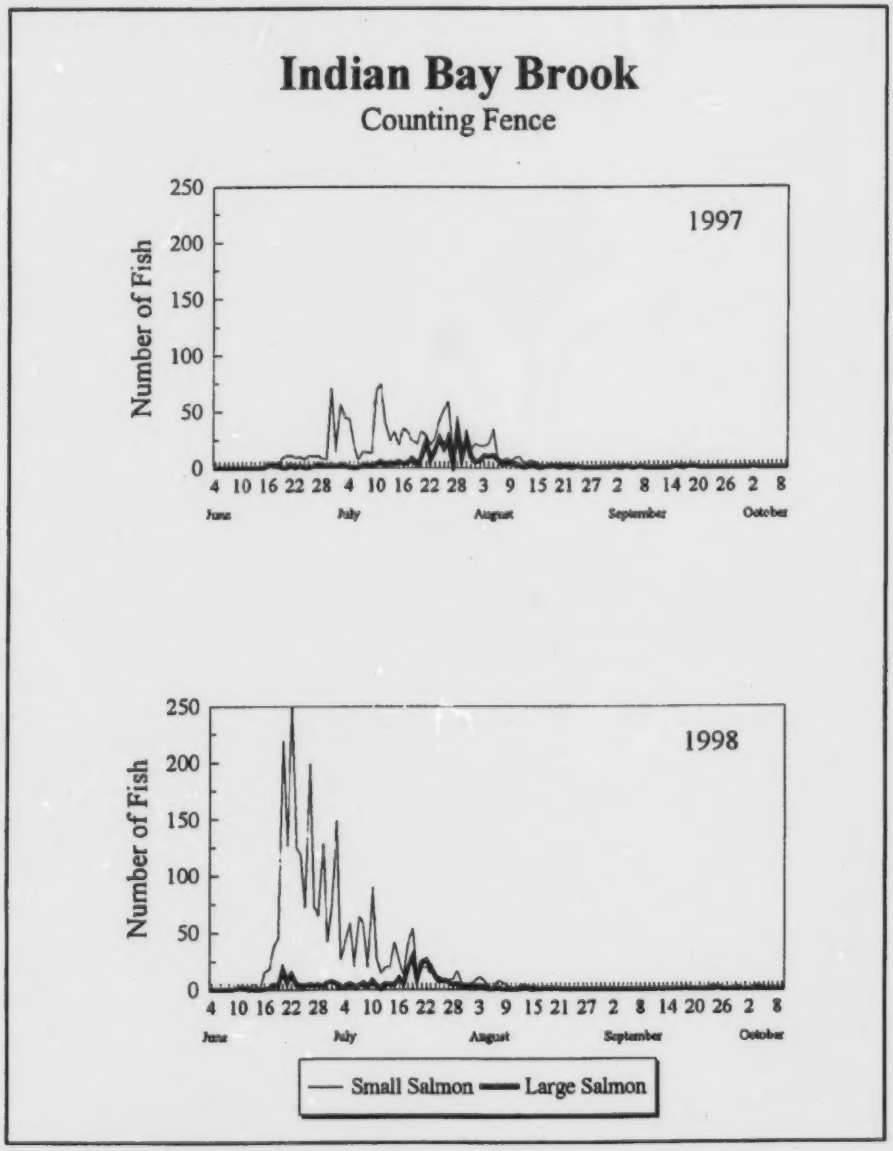

Fig. 7. Daily counts of small and large salmon from the counting fence in Indian Bay Brook, 1997-98.

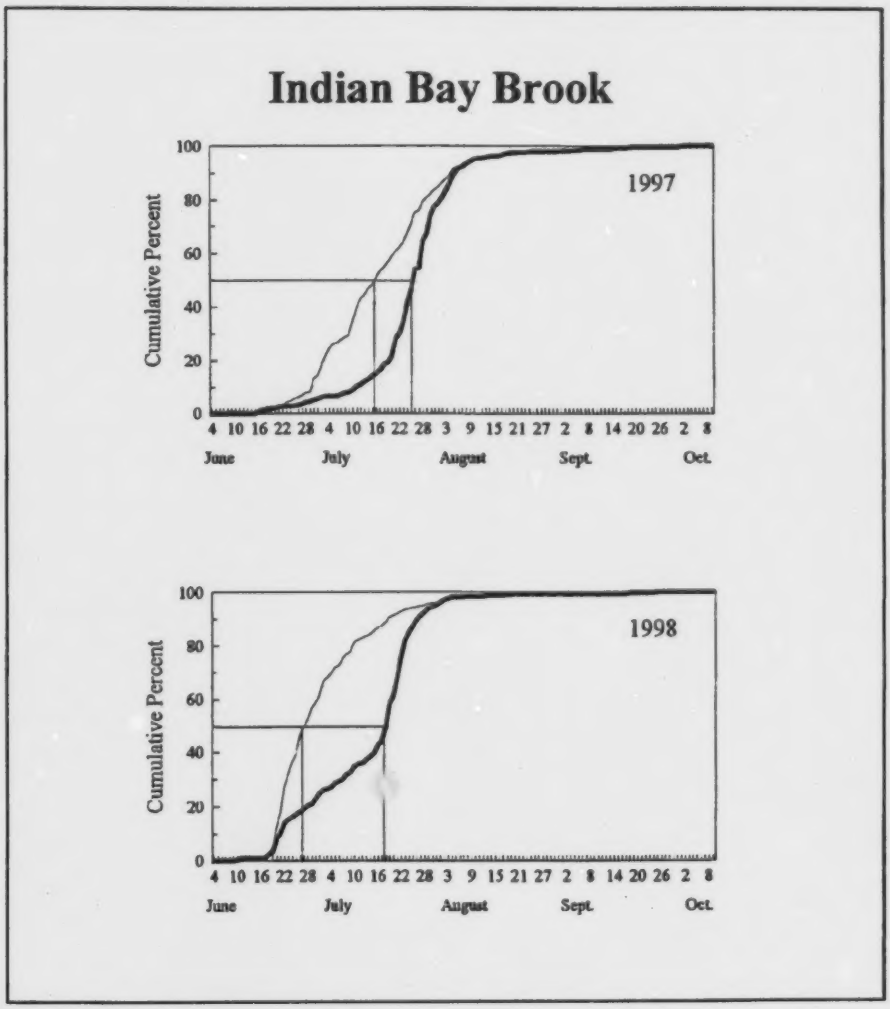

Fig. 8. Daily cumulative percent of small and large salmon from the counting fence in Indian Bay Brook, 1997-98. Dates of median counts are also shown.

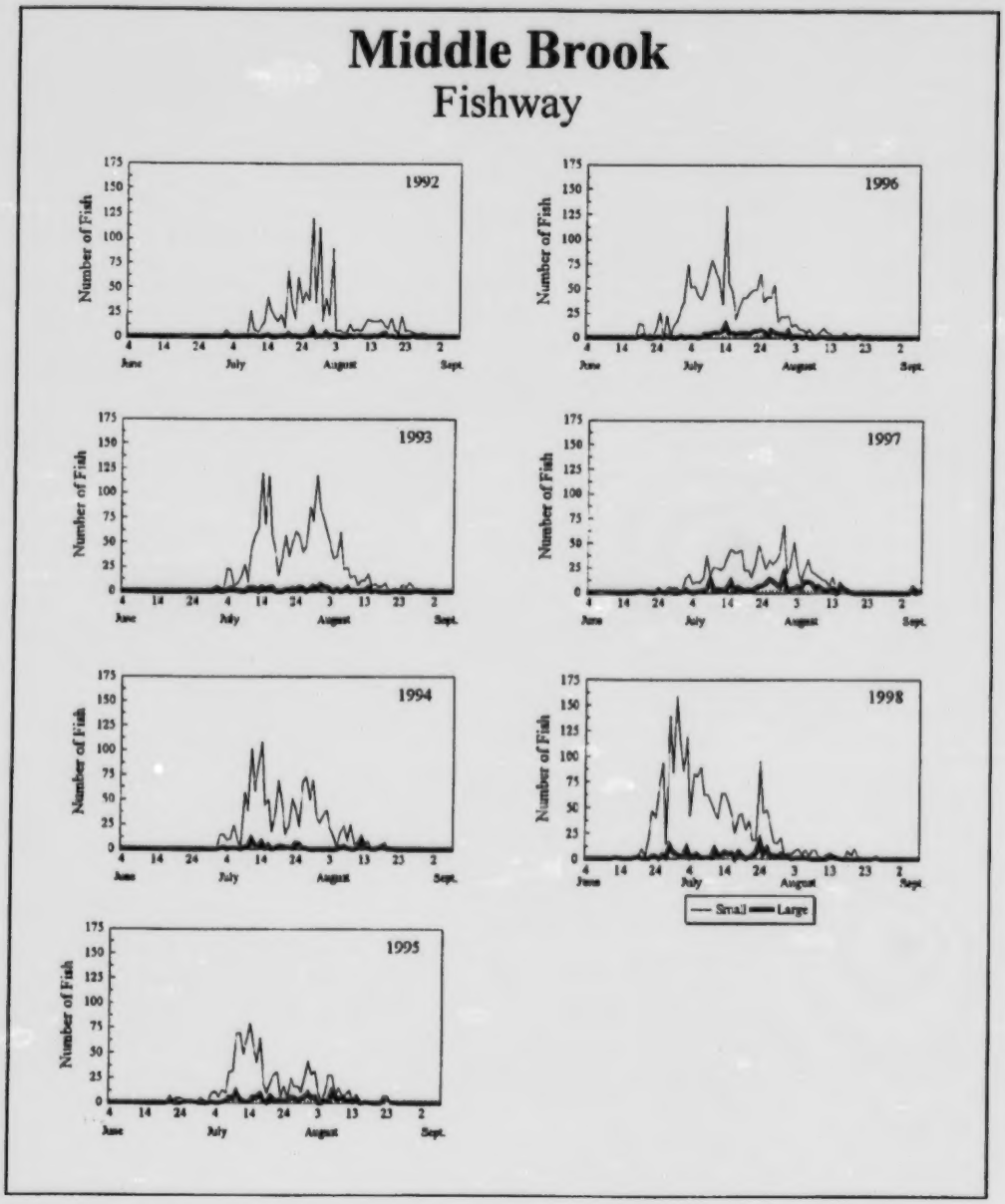

Fig. 9. Daily counts of small and large salmon at the Middle Brook fishway, during the moratorium years, 1992-98.

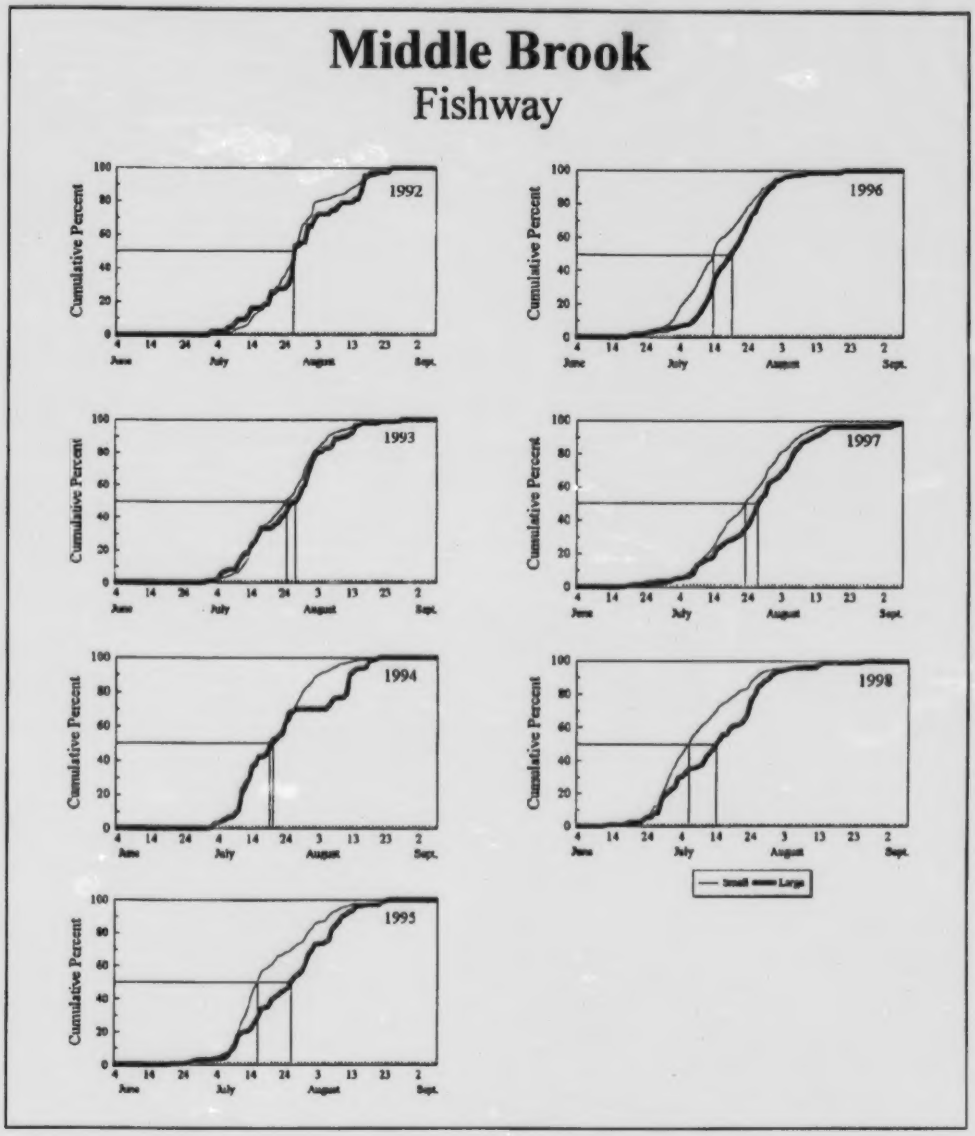

Fig. 10. Daily cumulative percent of small and large salmon at the Middle Brook fishway, during the moratorium years, 1992-98. Dates of median counts are also shown.

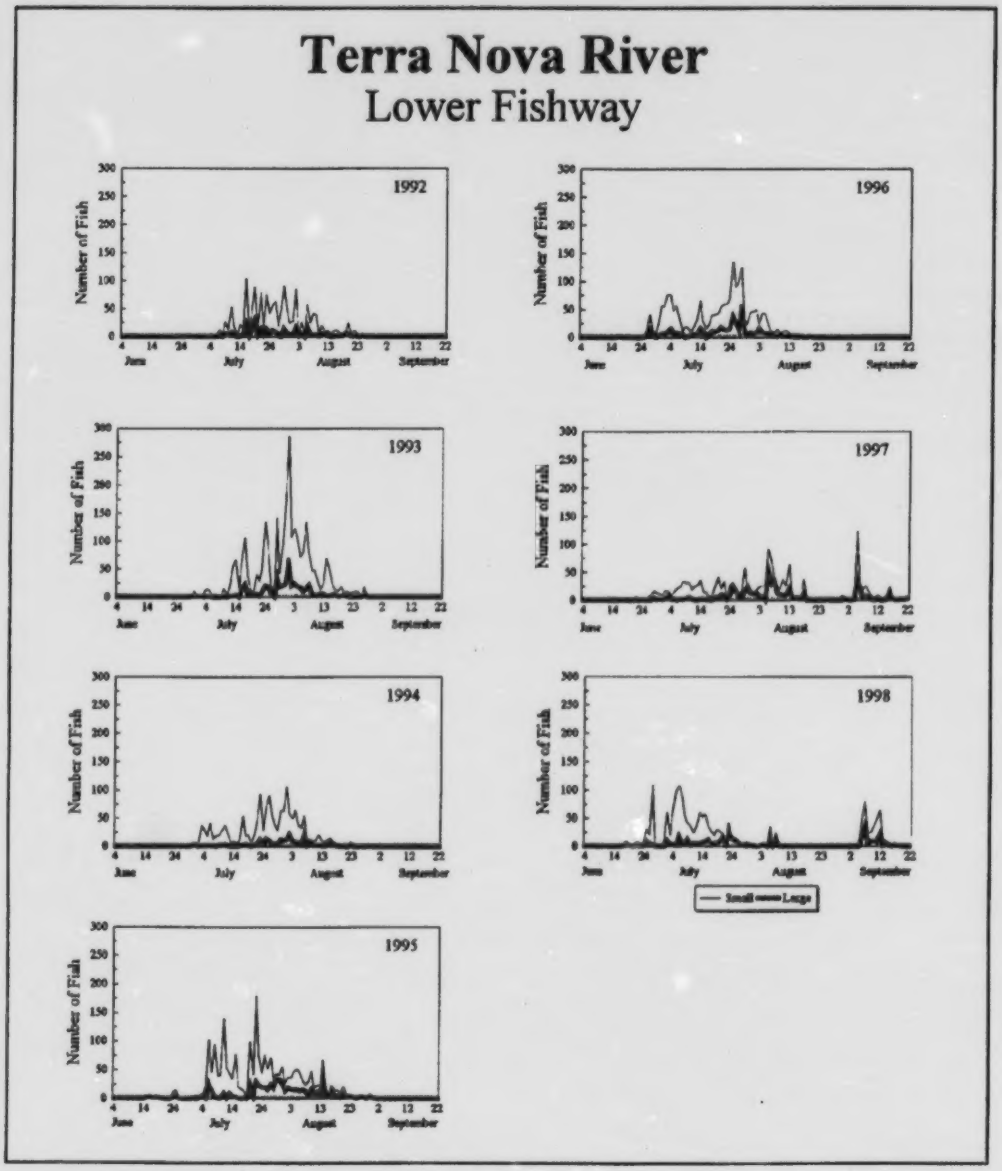

Fig. 11. Daily counts of small and large salmon at the lower fishway in Terra Nova River, during the moratorium years, 1992-98.

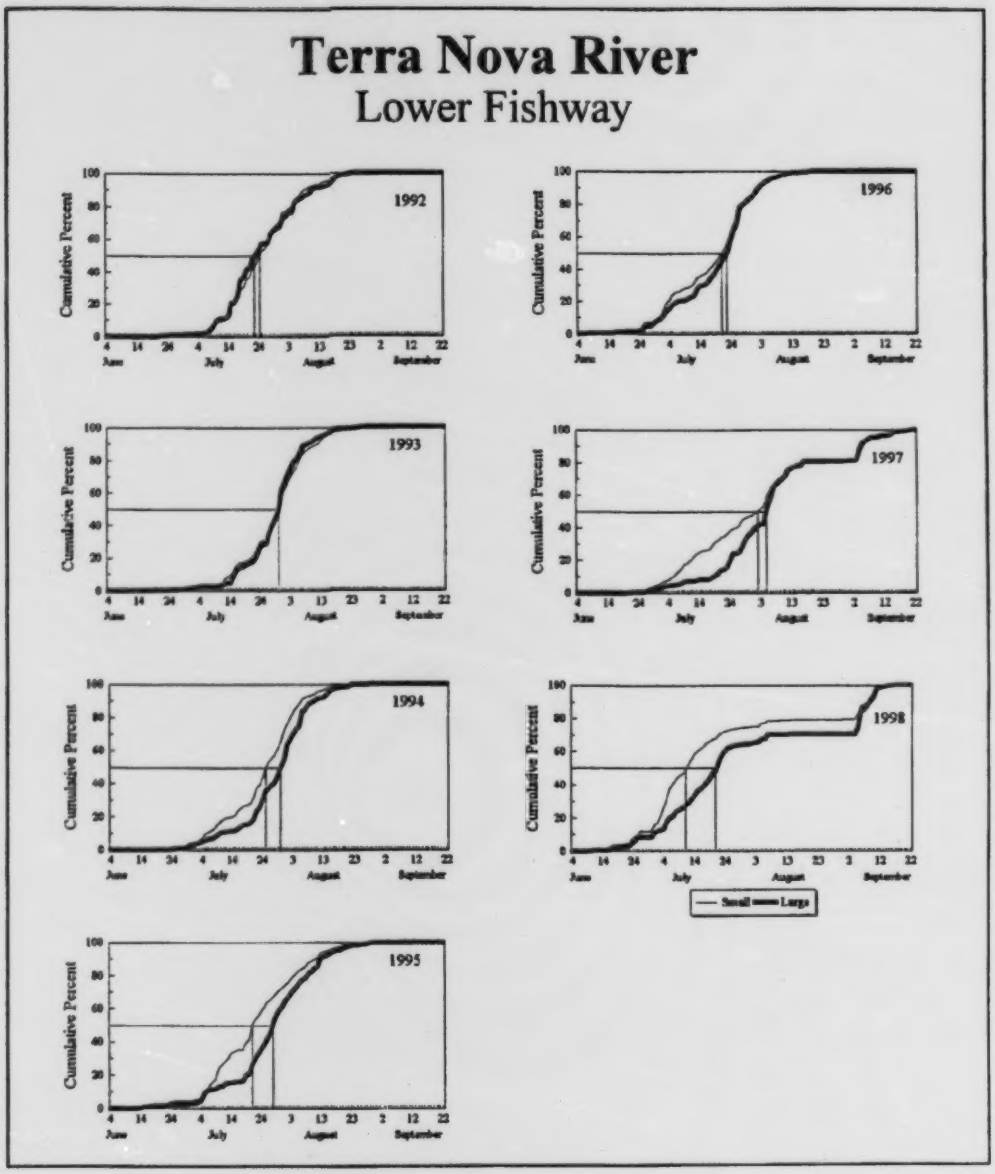

Fig. 12. Daily cumulative percent of small and large salmon at the lower fishway in Terra Nova River, during the moratorium years, 1992-98. Dates of median counts are also shown.

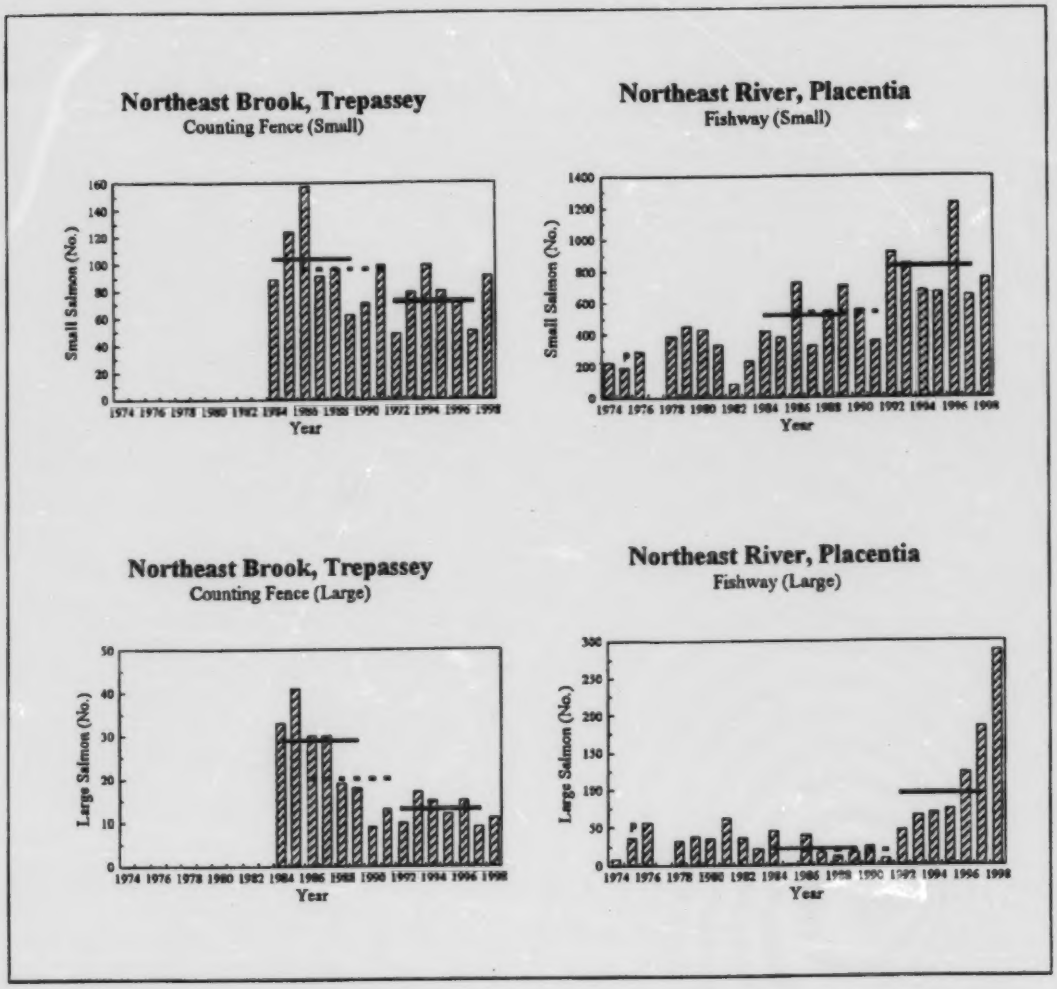

Fig. 13. Counts of small and large salmon at the Northeast Brook Trepassey counting fence, 1984-98 and the Northeast River Placentia fishway, 1974-98. The thin solid horizontal line represents the 1984-89 mean, the broken line the 1986-91 mean and the thick solid line the 1992-97 mean. P=partial count not included in means.

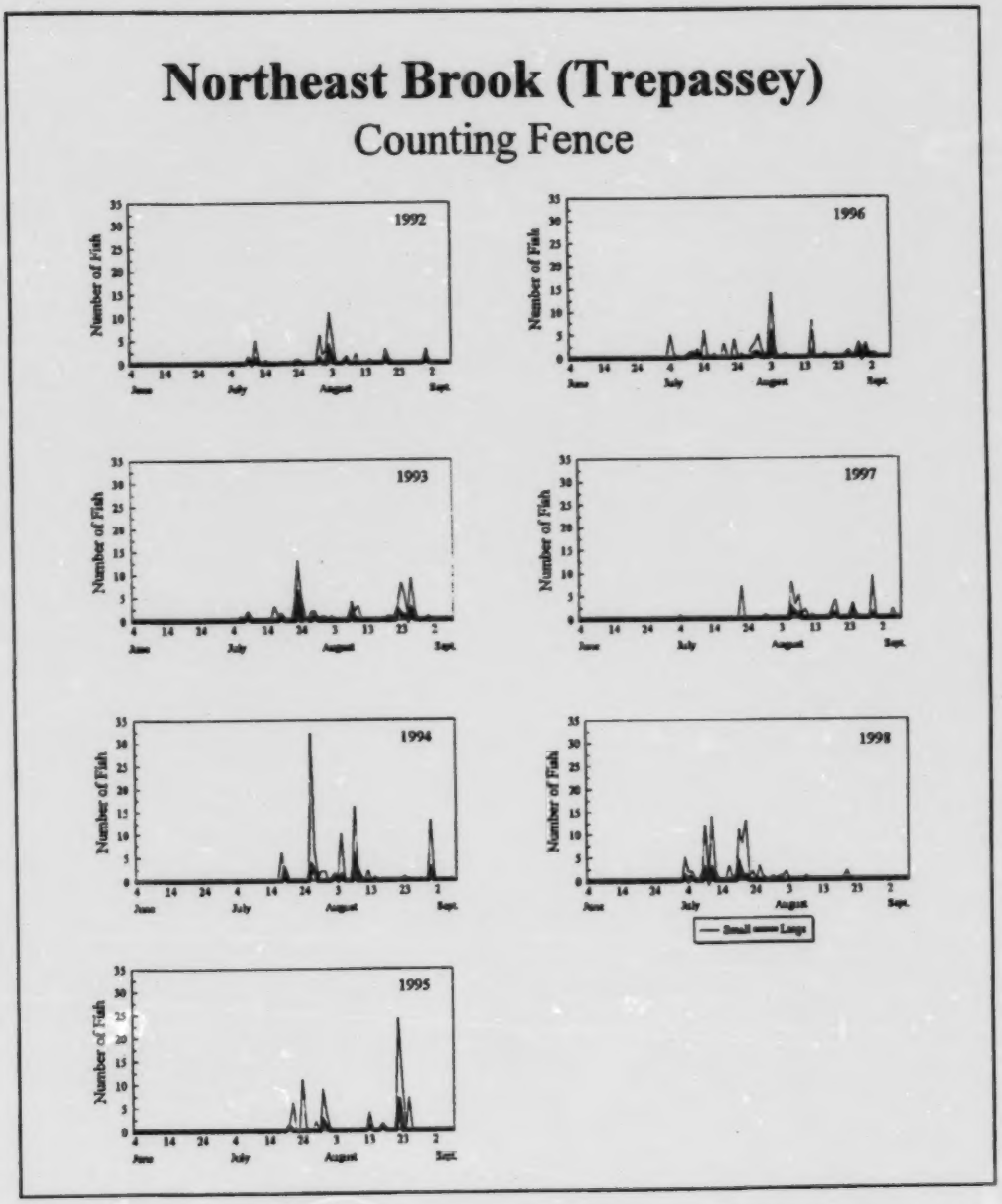

Fig. 14. Daily counts of small and large salmon at the Northeast Brook (Trepassey) counting fence, during the moratorium years, 1992-98.

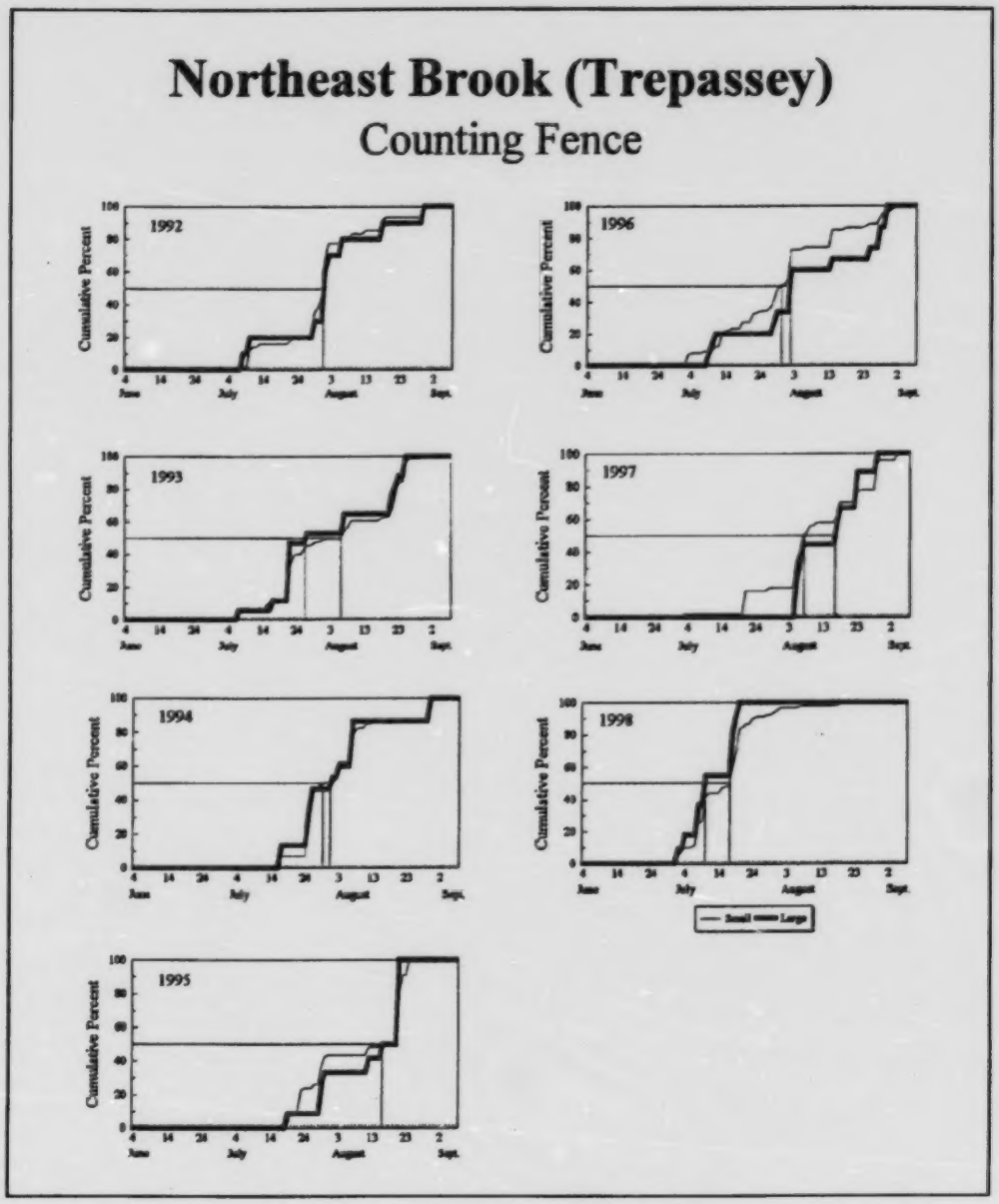

Fig. 15. Daily cumulative percent of small and large salmon at the Northeast Brook (Trepassey) counting fence, during the moratorium years, 1992-98. Dates of median counts are also shown.

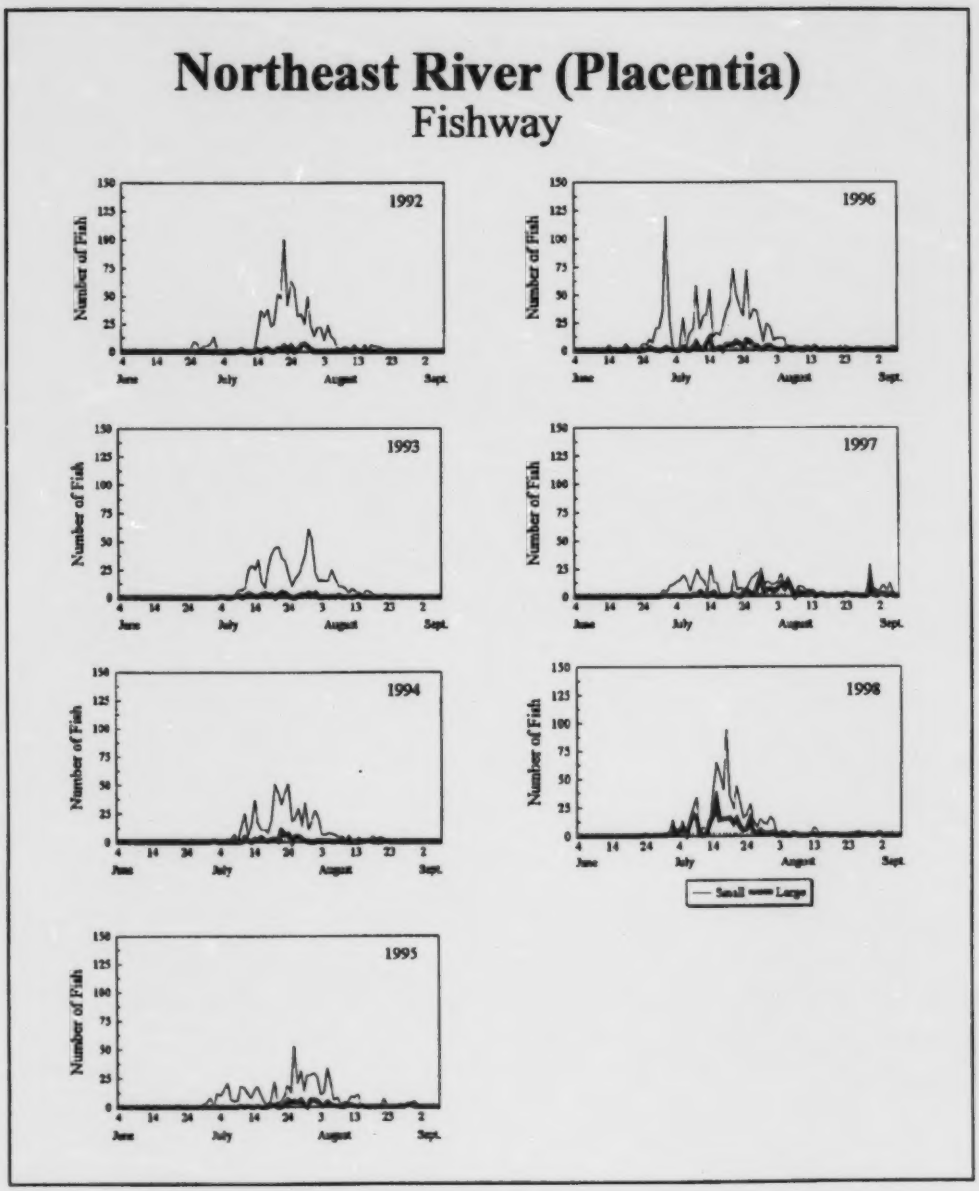

Fig. 16. Daily counts of small and large salmon at the fishway in Northeast River (Placentia), during the moratorium years, 1992-98.

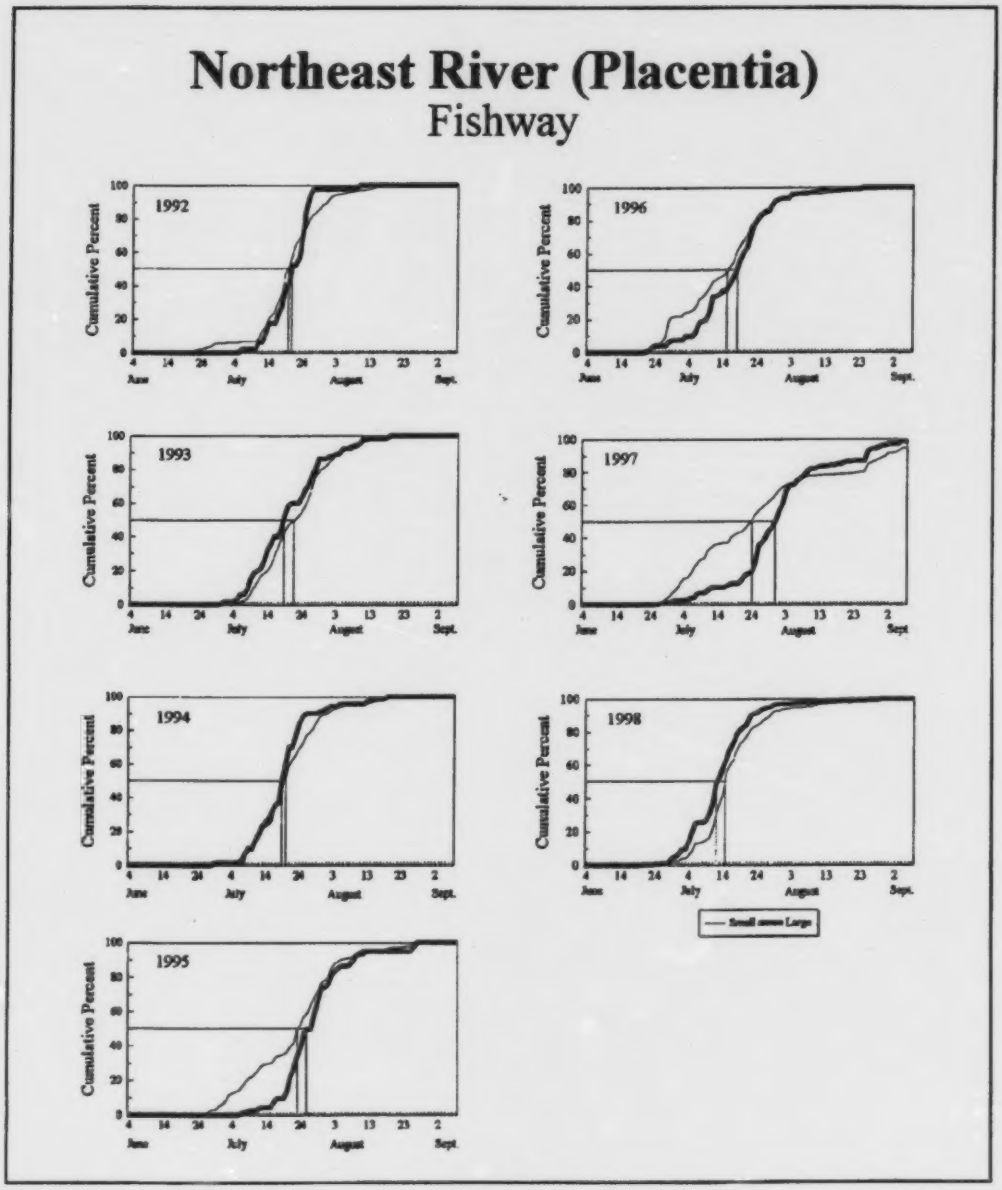

Fig. 17. Daily cumulative percent of small and large salmon at the fishway in Northeast River (Placentia), during the moratorium years, 1992-98. Dates of median counts are also shown.

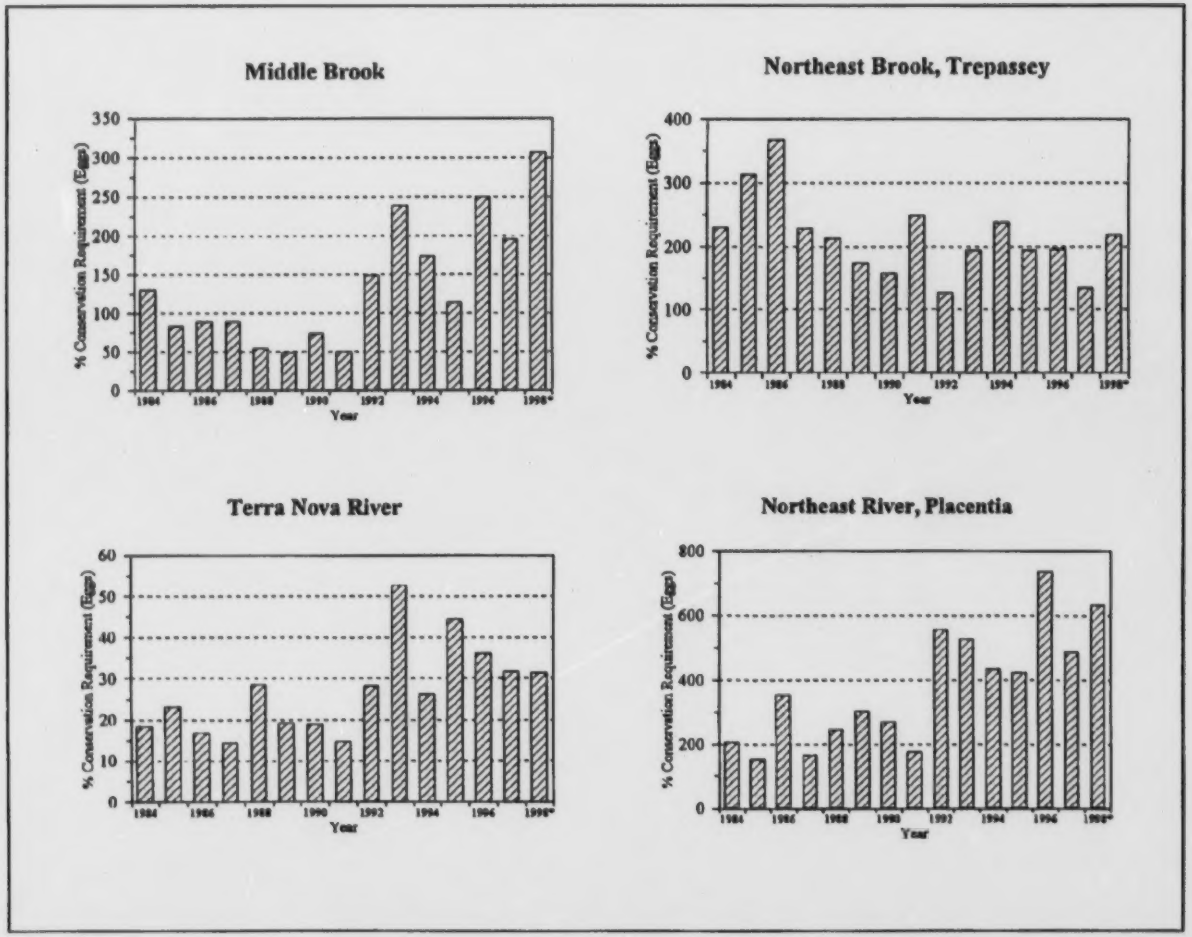

Fig. 18. Percentage conservation egg requirement achieved for Middle Brook and Terra Nova River (SFA 5), Northeast Brook, Trepassey (SFA 9) and Northeast River, Placentia (SFA 10), 1984-98.

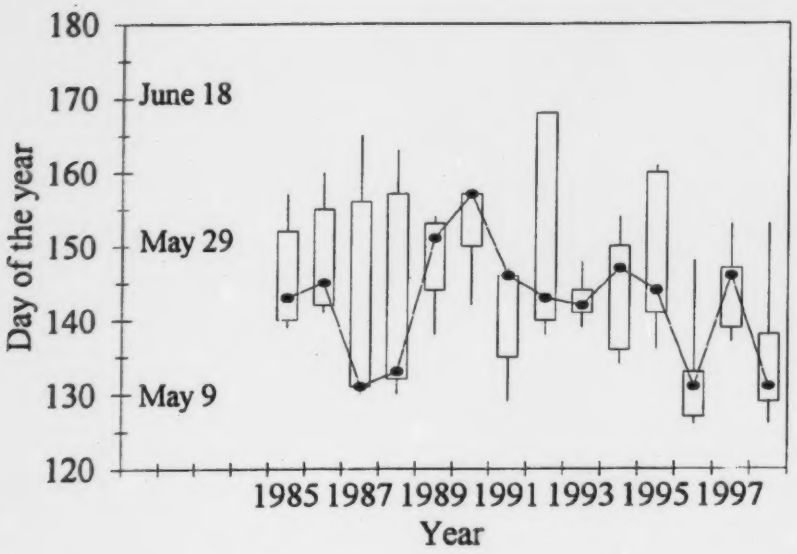

Fig. 19. Annual variation in smolt run timing for Northeast Brook, Trepassey, 1985-98. Vertical lines represent the 10th and 90th percentiles, rectangles are the 25th and 75th percentiles, and the point within each rectangle is the median.

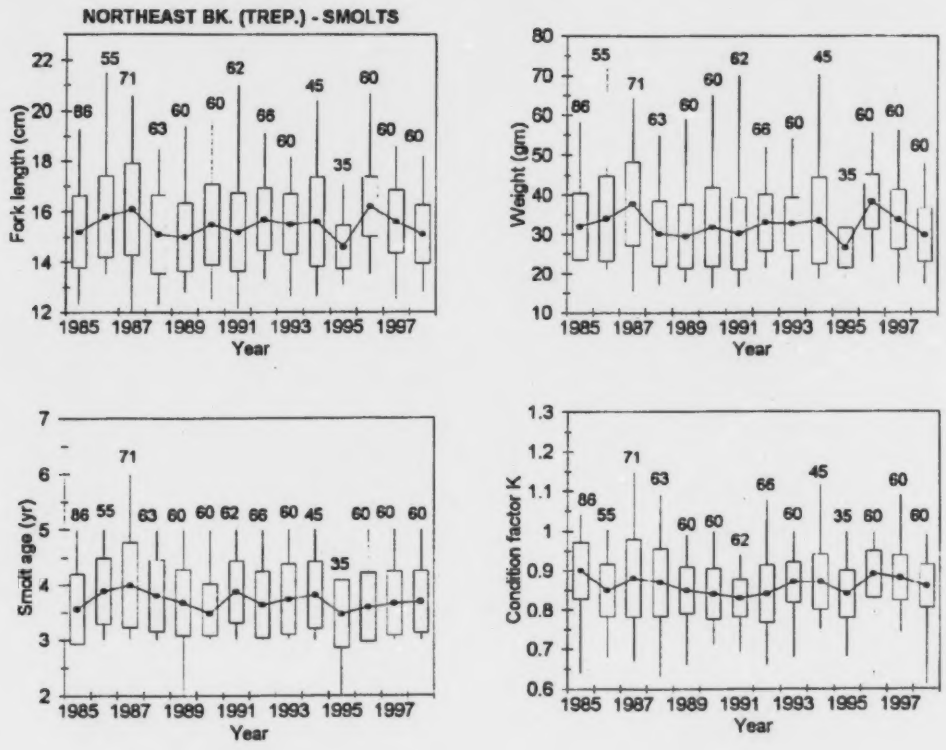

Fig. 20. Mean fork length, mean weight, mean smolt age, and mean condition factor for smolts from Northeast Brook (Trepassey), 1985-98. The rectangle around each point denotes the standard deviation; the vertical line is the range; the number above the vertical line is the sample size.

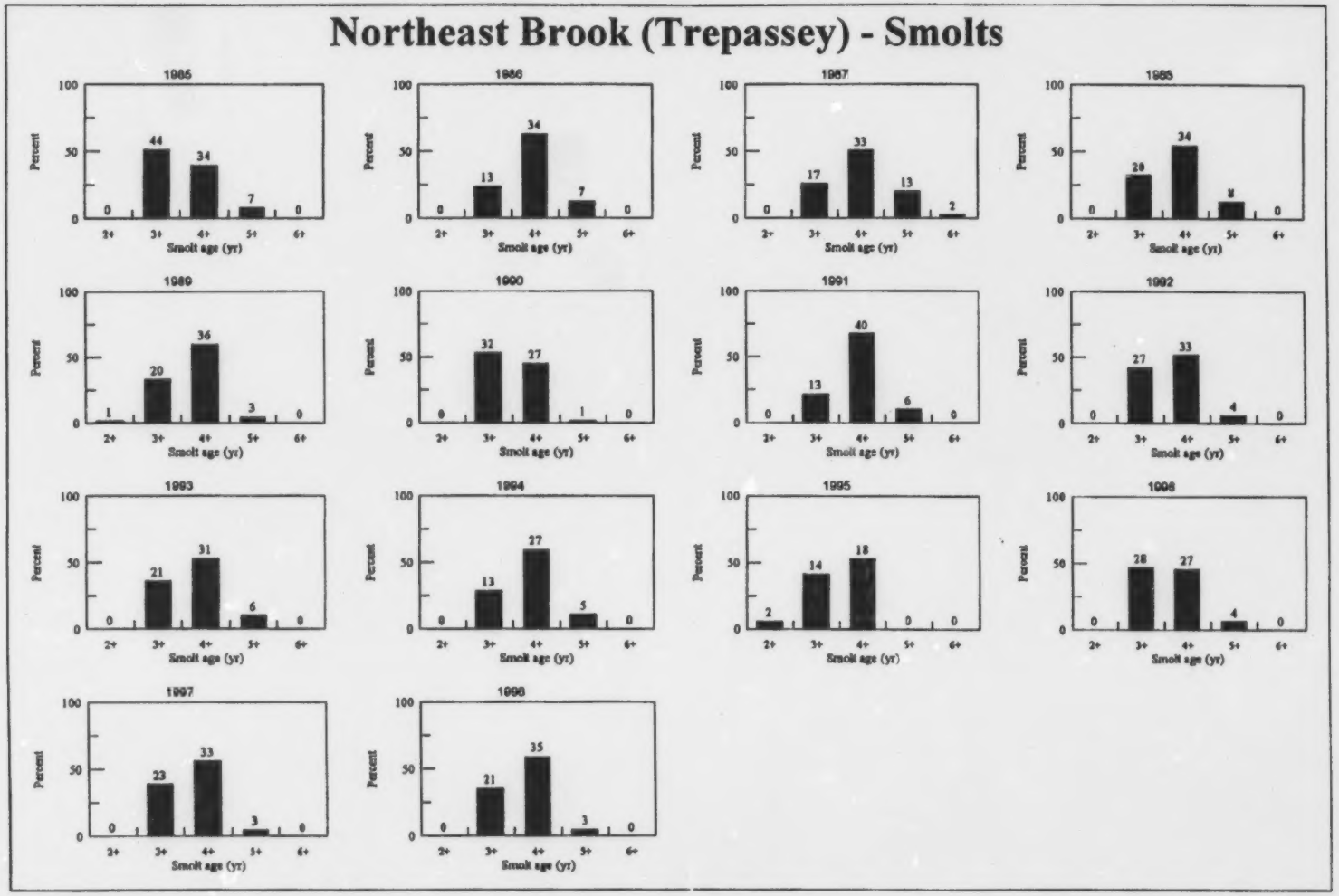

Fig. 21. Age composition for smolts from Northeast Brook (Trepassey), 1985-98. The number above each bar denotes sample size.

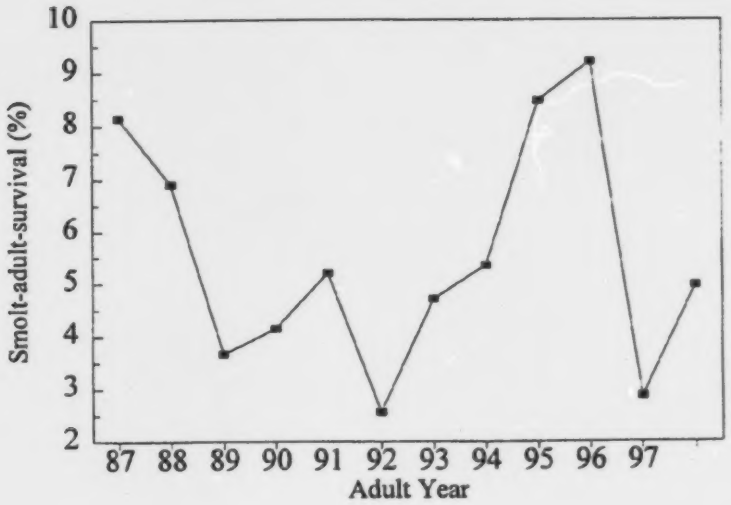

Fig. 22. Atlantic salmon smolt-to-adult survival (back to the river) for Northeast Brook, Trepassey (SFA 9).

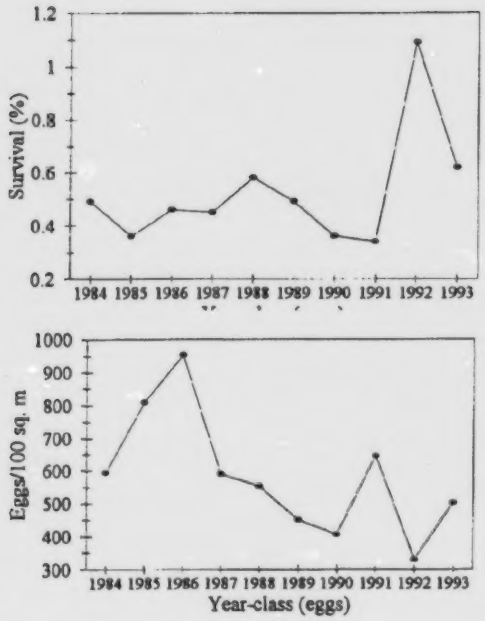

Fig. 23. Egg-to-smolt survival and egg deposition rate for Northeast Brook, Trepassey.

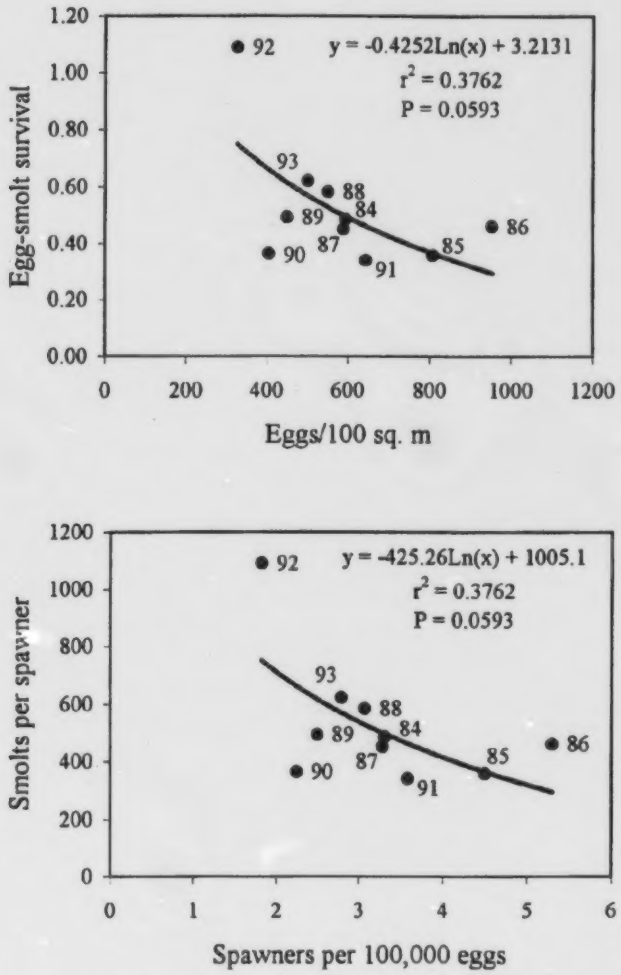

Fig. 24. Relationship between egg-to-smolt survival and egg deposition (top) and between smolts produced per spawner and number of spawners (bottom), for Northeast Brook, Trepassey.

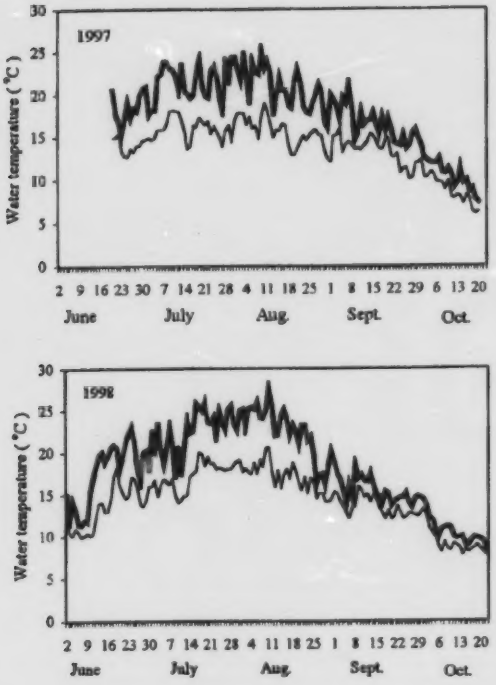

Fig. 25. Maximum and minimum water temperatures (°C) measured at the counting fence in Indian Bay Brook, 1997-98.

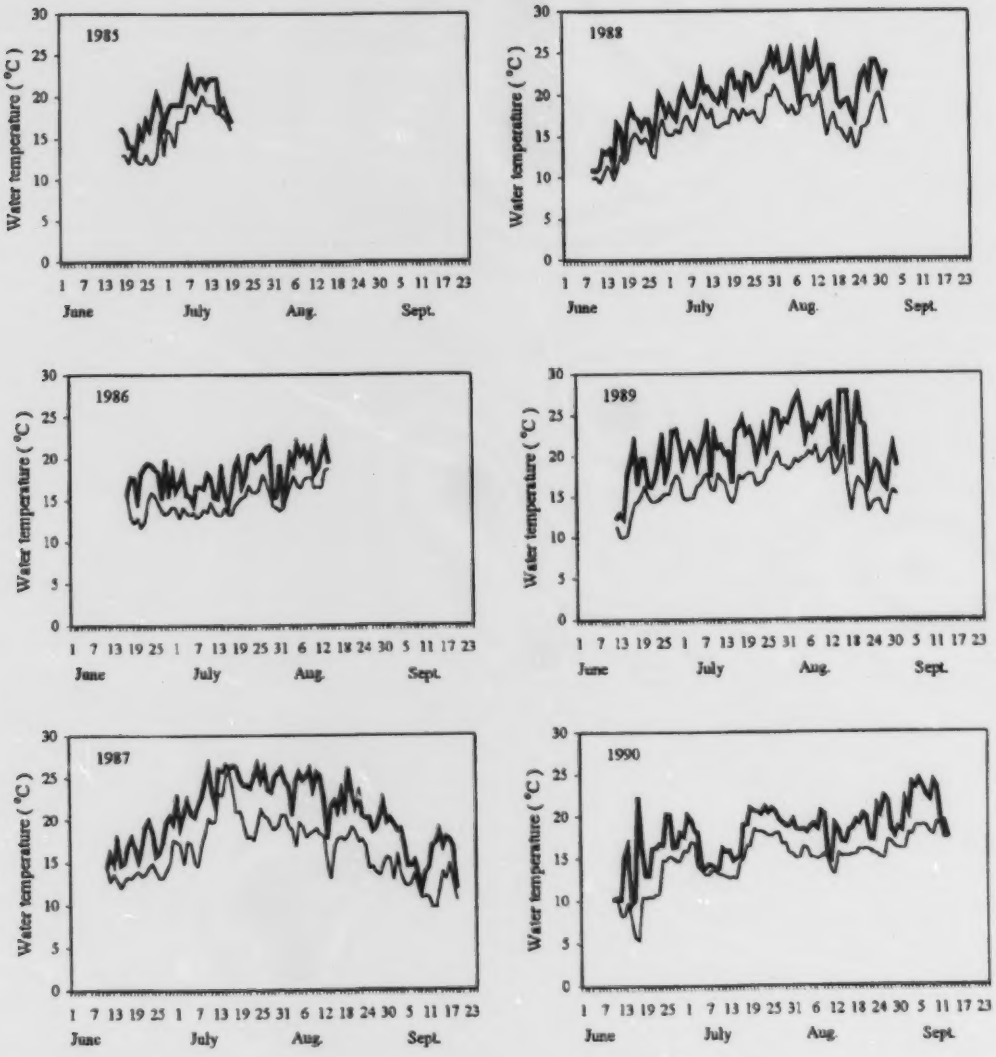

Fig. 26. Maximum and minimum water temperatures (°C) measured at the fishway in Middle Brook, 1985-98.

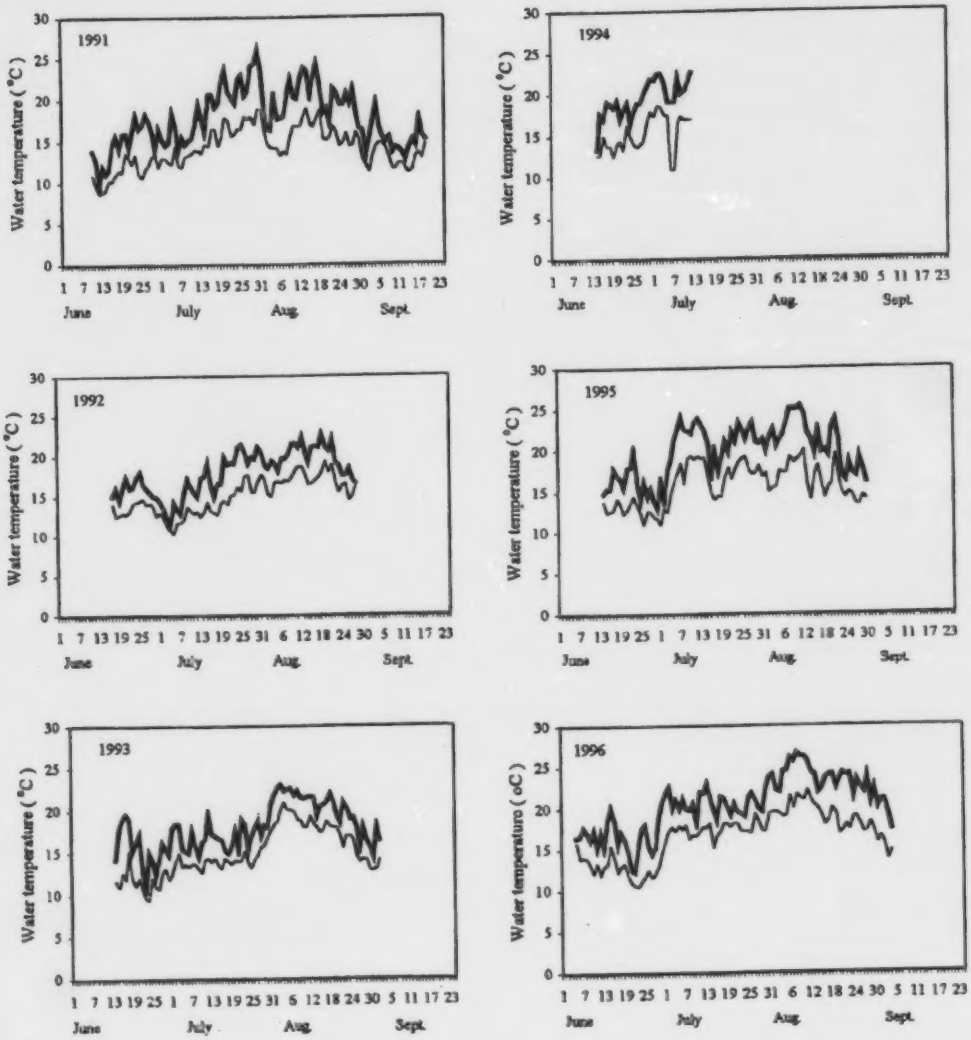
1991
1994
1992
1995
1993
1996
Water temperature (°C)
Water temperature (oC)
0 5 10 15 20 25 30
1 7 13 19 25 1 7 13 19 25 31 6 12 18 24 30 5 11 17 23
June
July
Aug.
Sept.

Fig. 26 (cont'd)

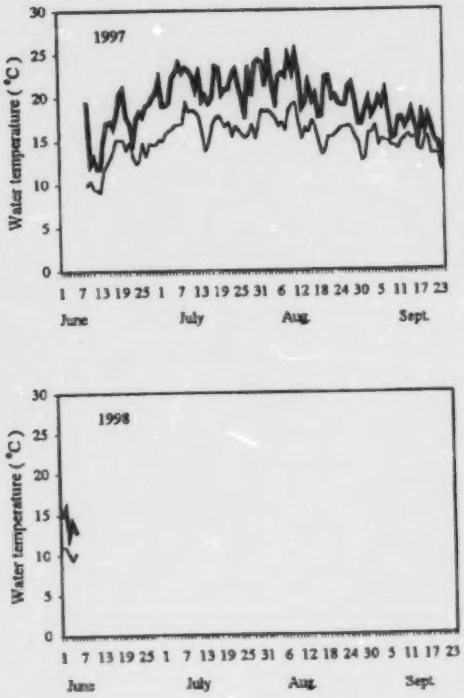
1997
Water temperature (°C)
30
25
20
15
10
5
0
1 7 13 19 25 1 7 13 19 25 31 6 12 18 24 30 5 11 17 23
June
July
Aug.
Sept.
1998
Water temperature (°C)
30
25
20
15
10
5
0
1 7 13 19 25 1 7 13 19 25 31 6 12 18 24 30 5 11 17 23
June
July
Aug.
Sept.

Fig. 26 (cont'd)

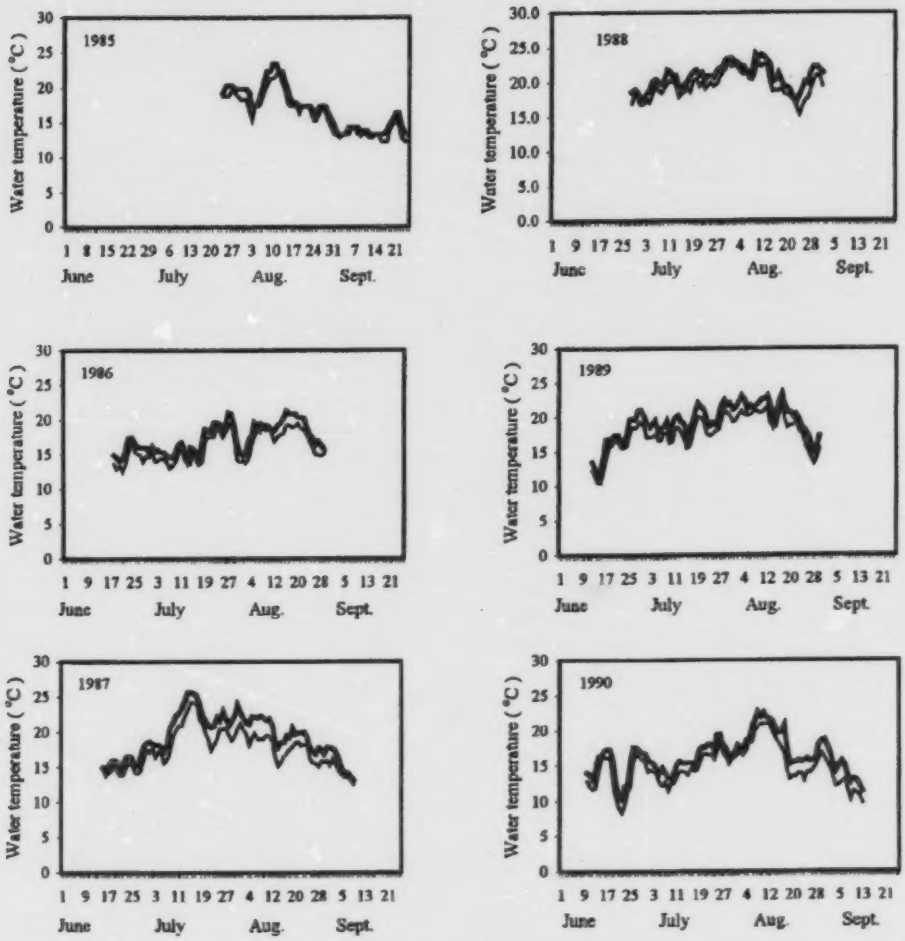

Fig. 27. Maximum and minimum water temperatures (°C) measured at the fishway in Lower Terra Nova River, 1985-98.

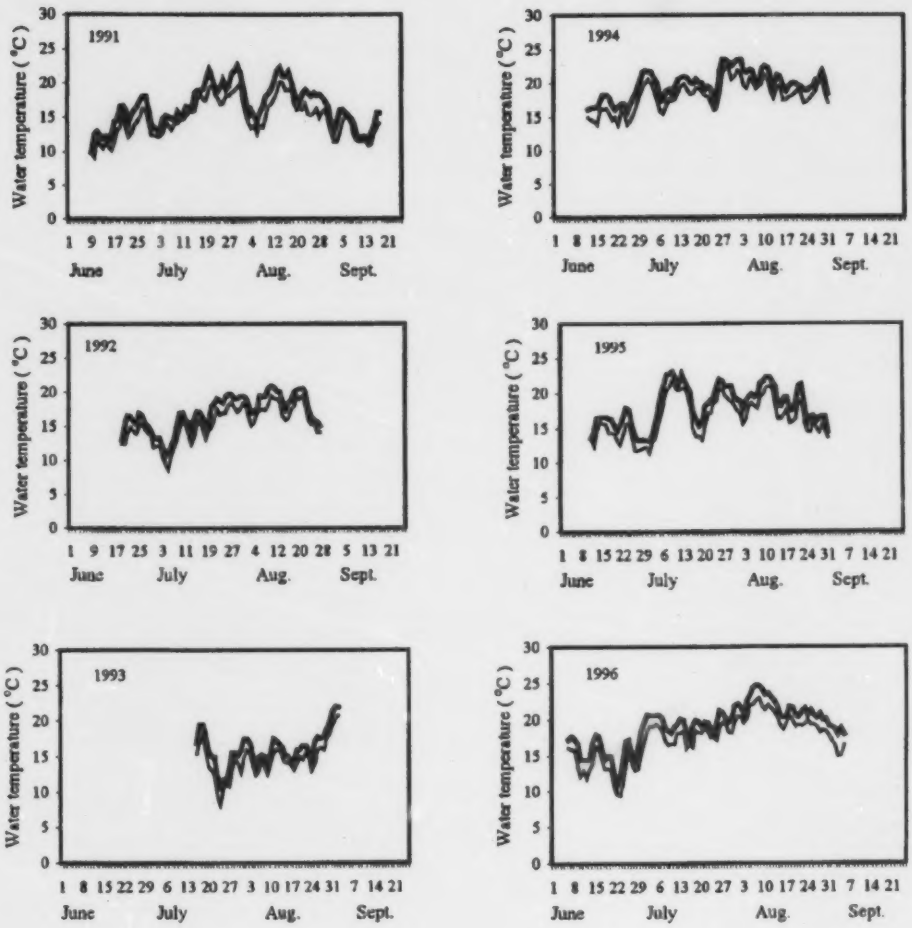
1991
1994
1992
1995
1993
1996
Water temperature (°C)
0 5 10 15 20 25 30
1 9 17 25 3 11 19 27 4 12 20 28 5 13 21
1 8 15 22 29 6 13 20 27 3 10 17 24 31 7 14 21
June
July
Aug.
Sept.

Fig. 27 (cont'd)

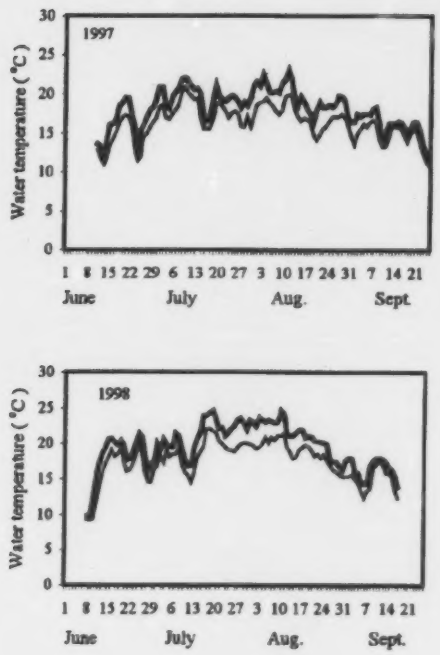
1997
Water temperature (°C)
30
25
20
15
10
5
0
1 8 15 22 29 6 13 20 27 3 10 17 24 31 7 14 21
June
July
Aug.
Sept.
1998
Water temperature (°C)
30
25
20
15
10
5
0
1 8 15 22 29 6 13 20 27 3 10 17 24 31 7 14 21
June
July
Aug.
Sept.

Fig. 27 (cont'd)

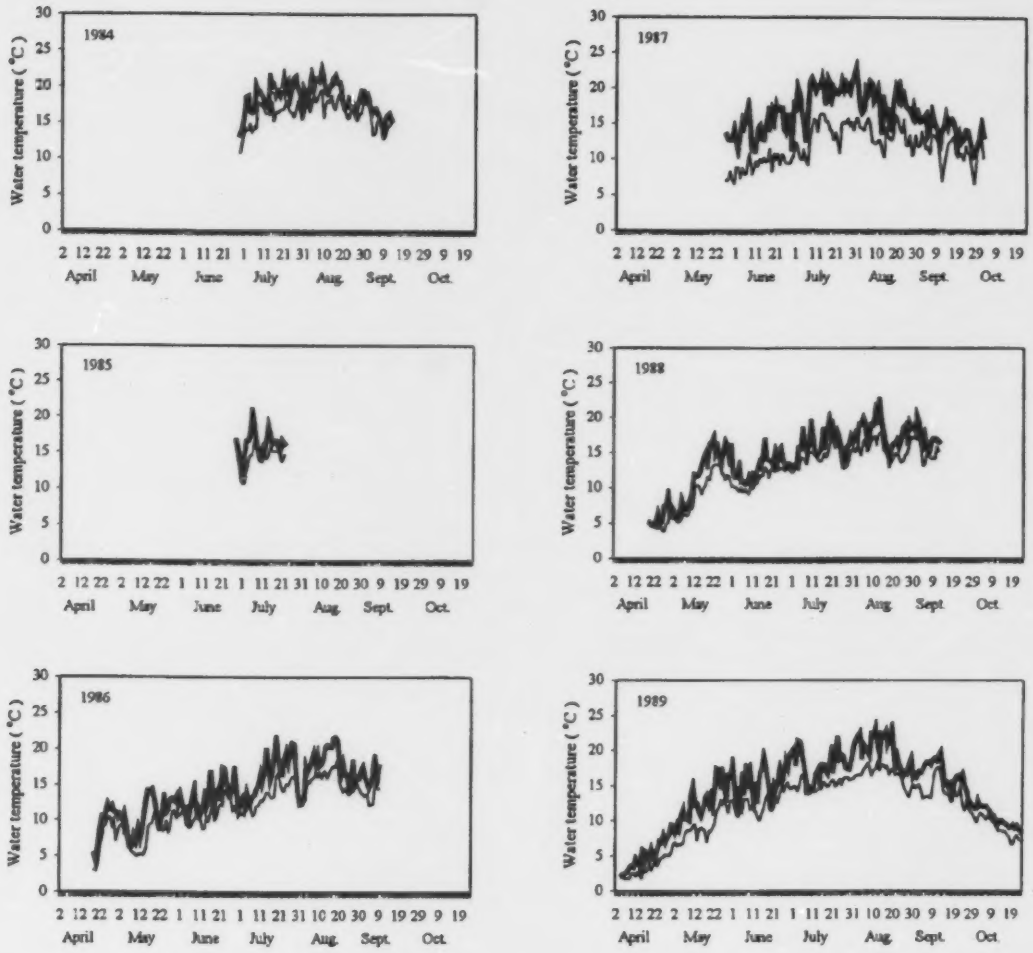

Fig. 28. Maximum and minimum water temperatures (°C) measured at the counting fence in Northeast Brook, Trepassey, 1984-98.

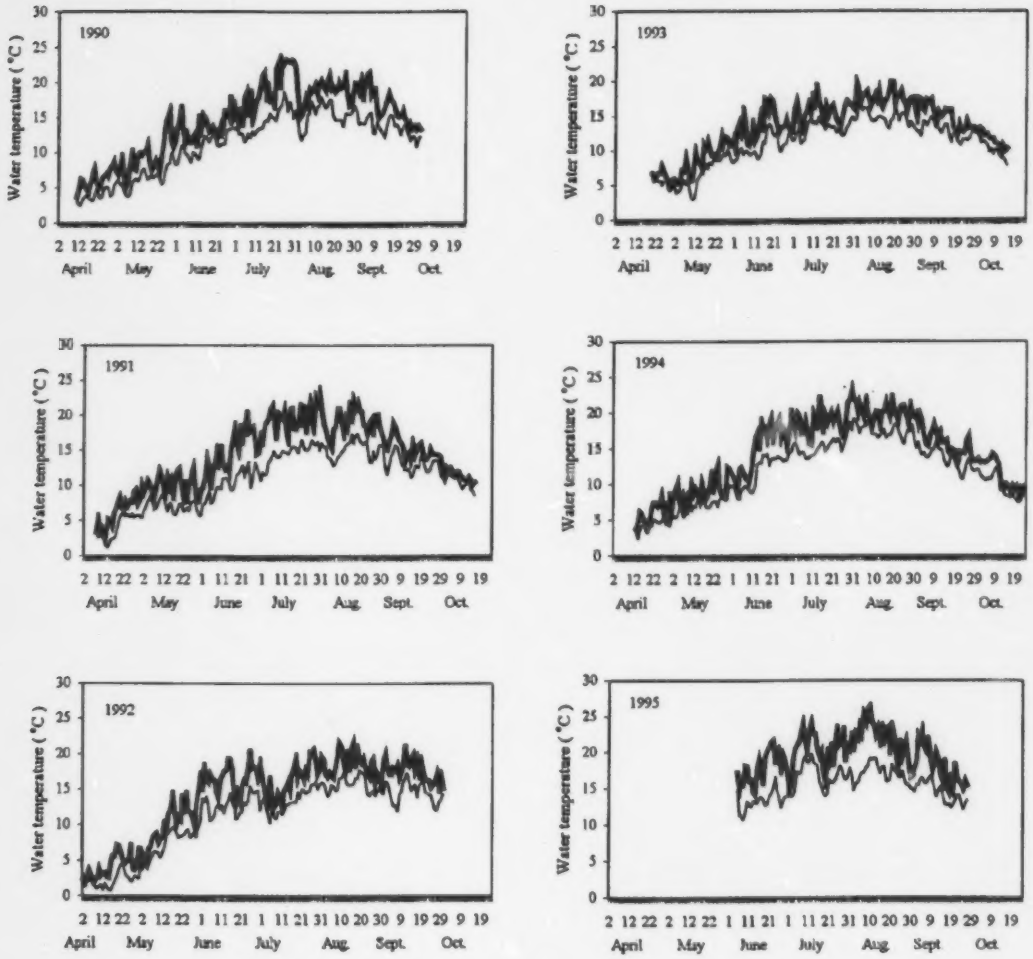
1990
1993
1991
1994
1992
1995
Water temperature (°C)
0 5 10 15 20 25 30
2 12 22 2 12 22 1 11 21 1 11 21 31 10 20 30 9 19 29 9 19
April May June July Aug. Sept. Oct.

Fig. 28 (cont'd)

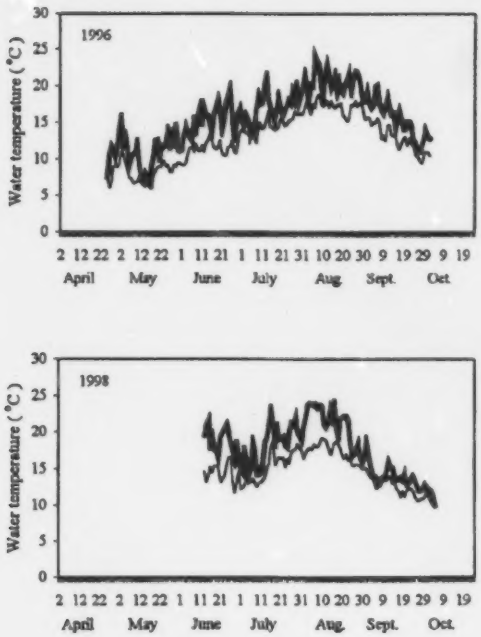
1996
Water temperature (°C)
30
25
20
15
10
5
0
2 12 22 2 12 22 1 11 21 1 11 21 31 10 20 30 9 19 29 9 19
April May June July Aug. Sept. Oct.
1998
Water temperature (°C)
30
25
20
15
10
5
0
2 12 22 2 12 22 1 11 21 1 11 21 31 10 20 30 9 19 29 9 19
April May June July Aug. Sept. Oct.

Fig. 28 (cont'd)

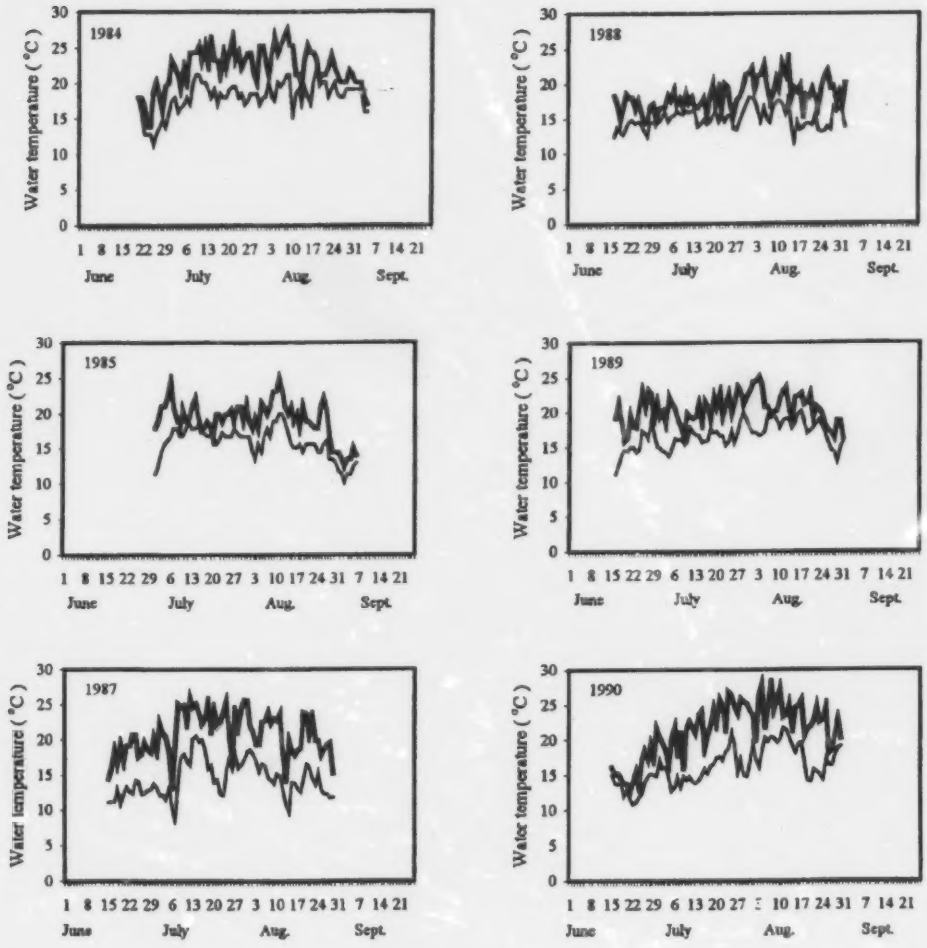

Fig. 29. Maximum and minimum water temperatures (°C) measured at the fishway in Northeast River, Placentia, 1985-98.

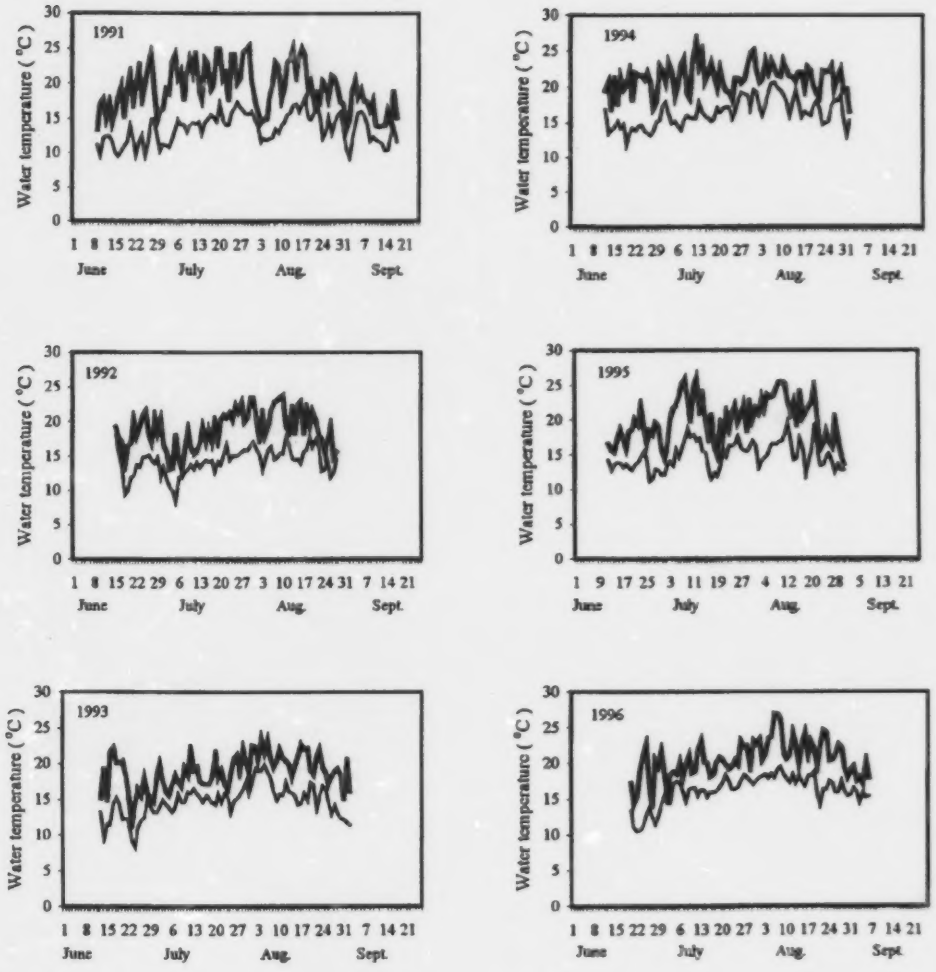
1991
1994
1992
1995
1993
1996
Water temperature (°C)
0 5 10 15 20 25 30
1 8 15 22 29 6 13 20 27 3 10 17 24 31 7 14 21
June July Aug. Sept.
1 9 17 25 3 11 19 27 4 12 20 28 5 13 21

Fig. 29 (cont'd)

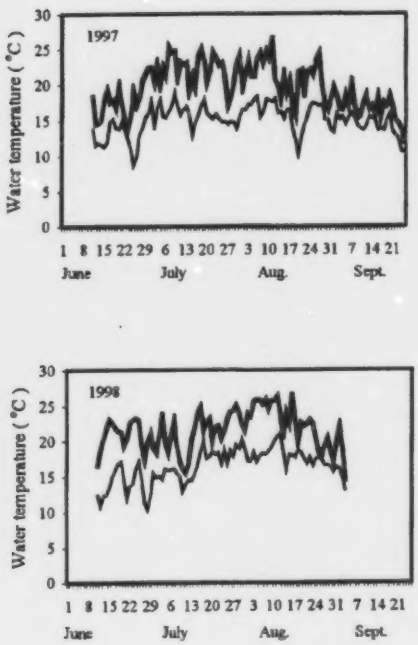
1997
Water temperature (°C)
30
25
20
15
10
5
0
1 8 15 22 29 6 13 20 27 3 10 17 24 31 7 14 21
June
July
Aug.
Sept.
1998
Water temperature (°C)
30
25
20
15
10
5
0
1 8 15 22 29 6 13 20 27 3 10 17 24 31 7 14 21
June
July
Aug.
Sept.

Fig. 29 (cont'd)

INDIAN BAY BROOK

SFA 5

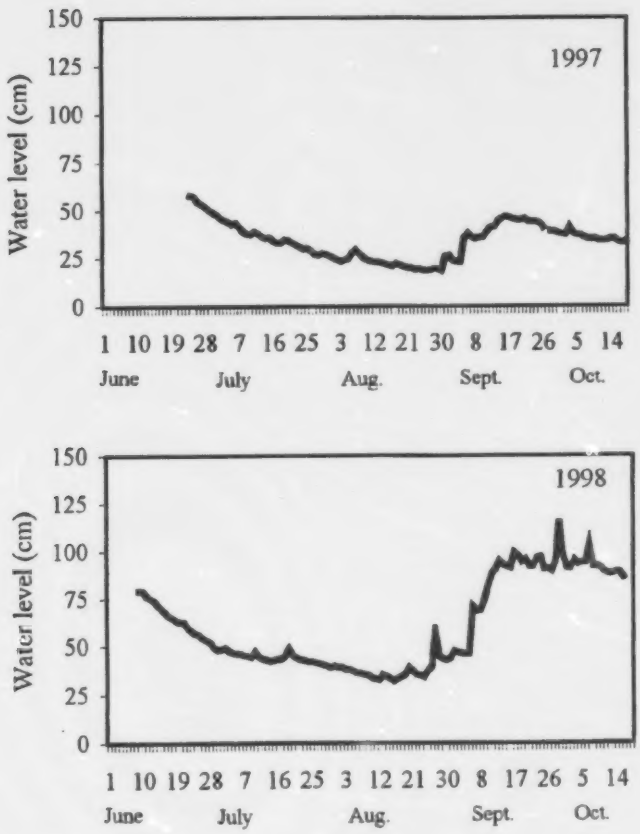

Fig. 30. Mean daily water levels measured near the counting fence in Indian Bay Brook, 1997-98.

MIDDLE BROOK
SFA 5

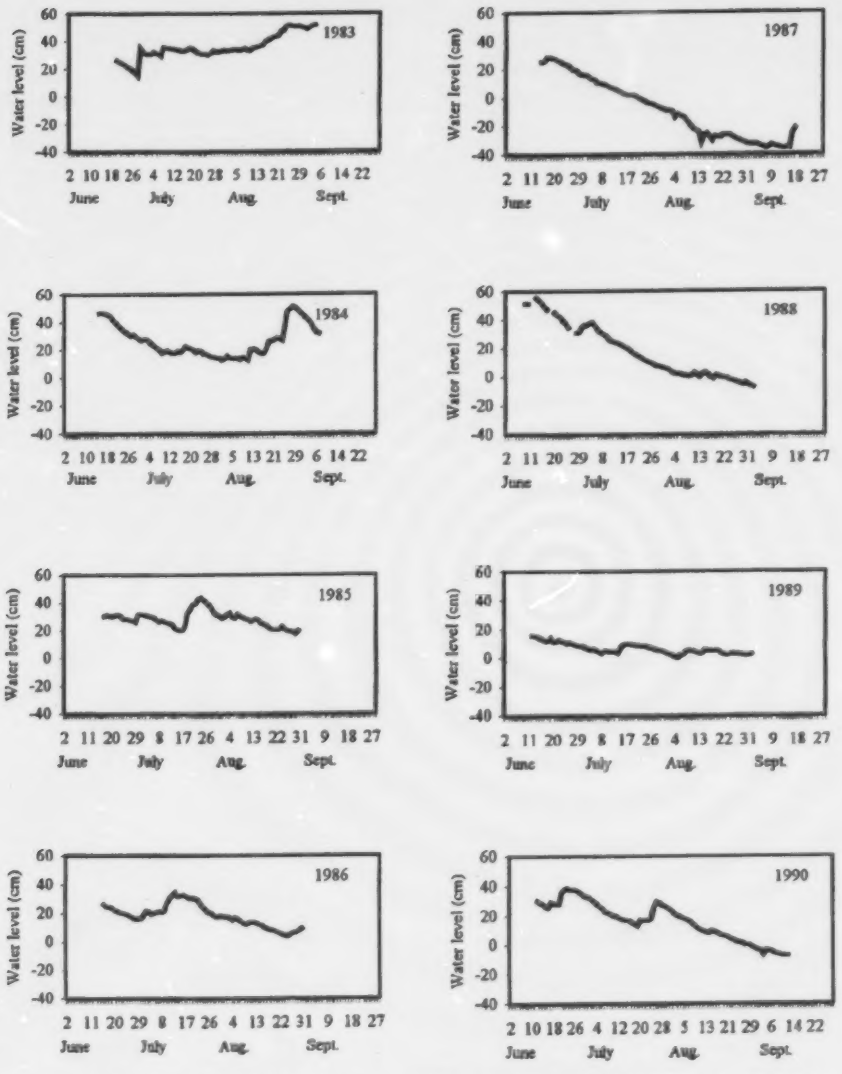

Fig. 31. Mean daily water levels (cm) measured near the fishway in Middle Brook, 1983-98.

MIDDLE BROOK
SFA 5

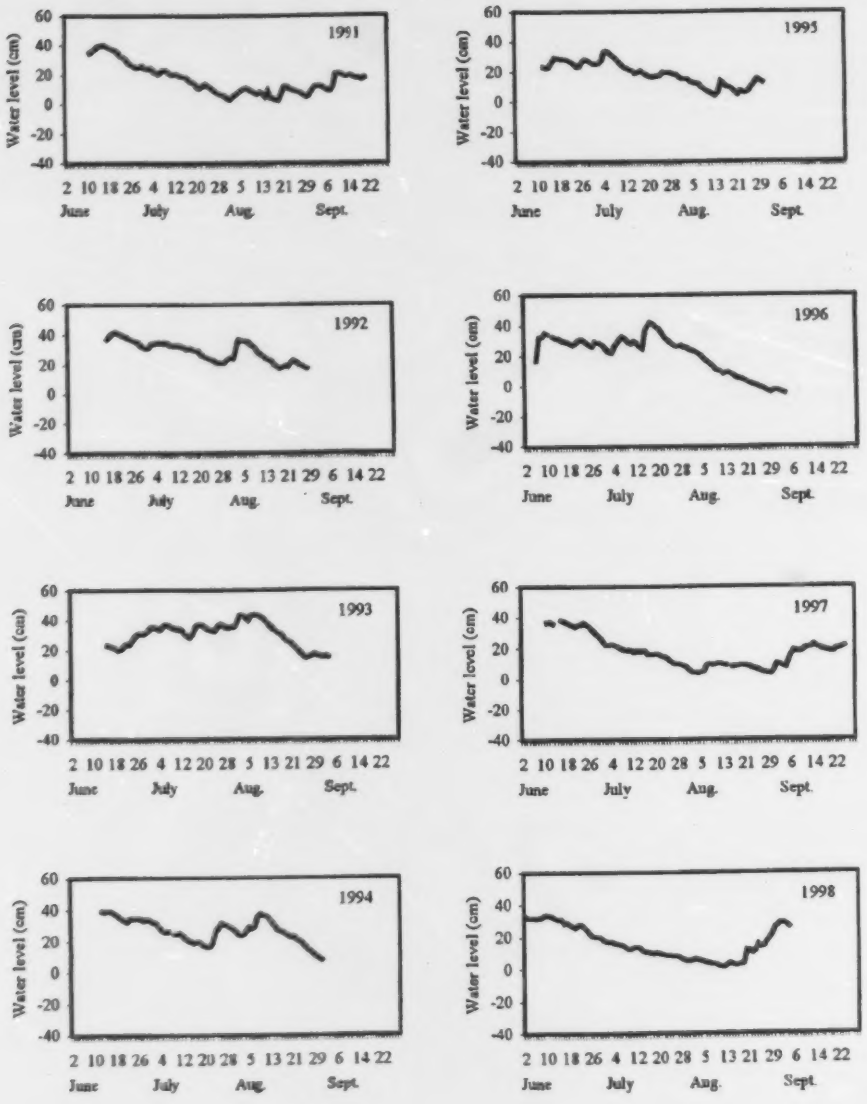

Fig. 31 (cont'd)

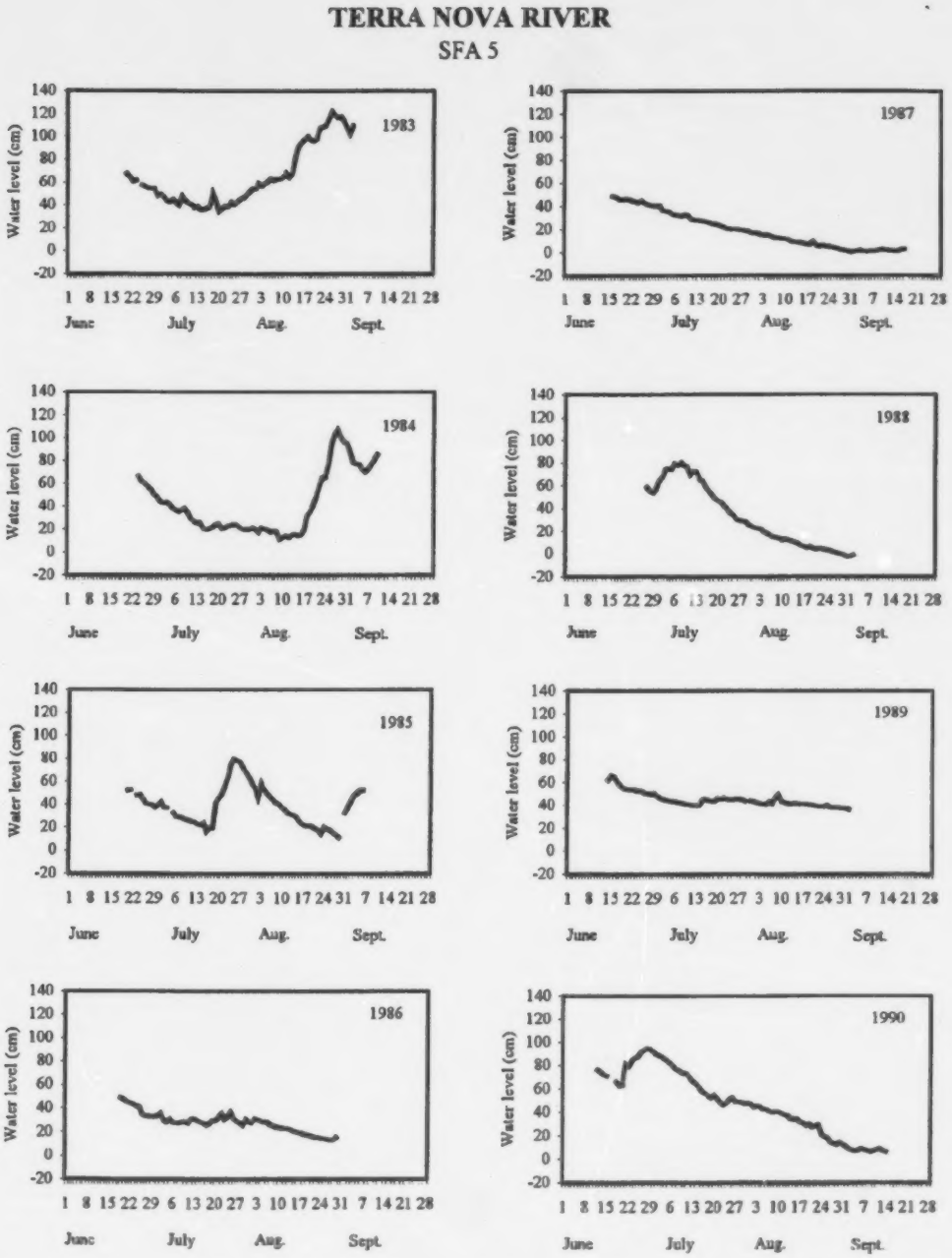

Fig. 32. Mean daily water levels (cm) measured near the fishway in Lower Terra Nova River, 1983-98.

TERRA NOVA RIVER
SFA 5

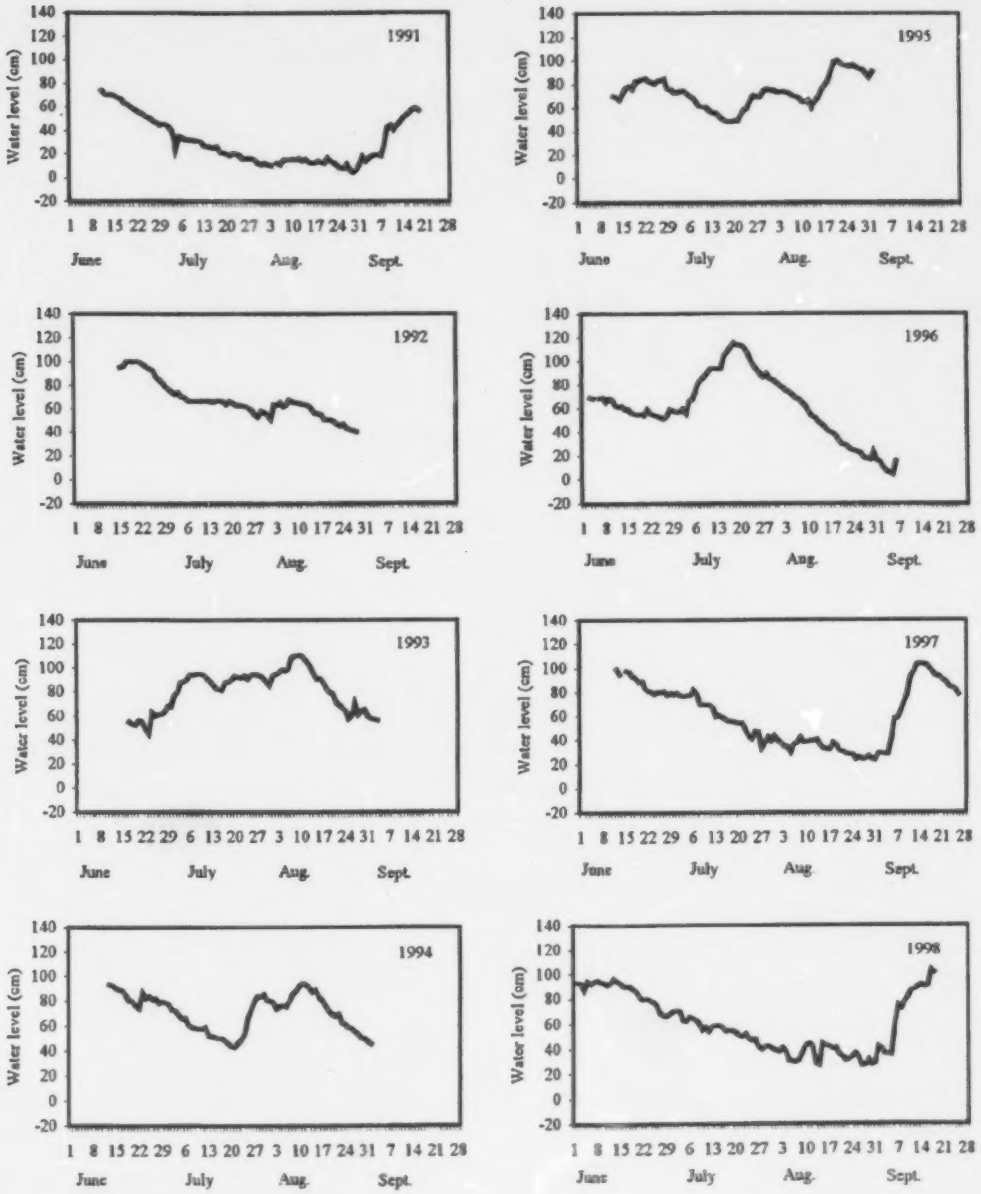

Fig. 32 (cont'd)

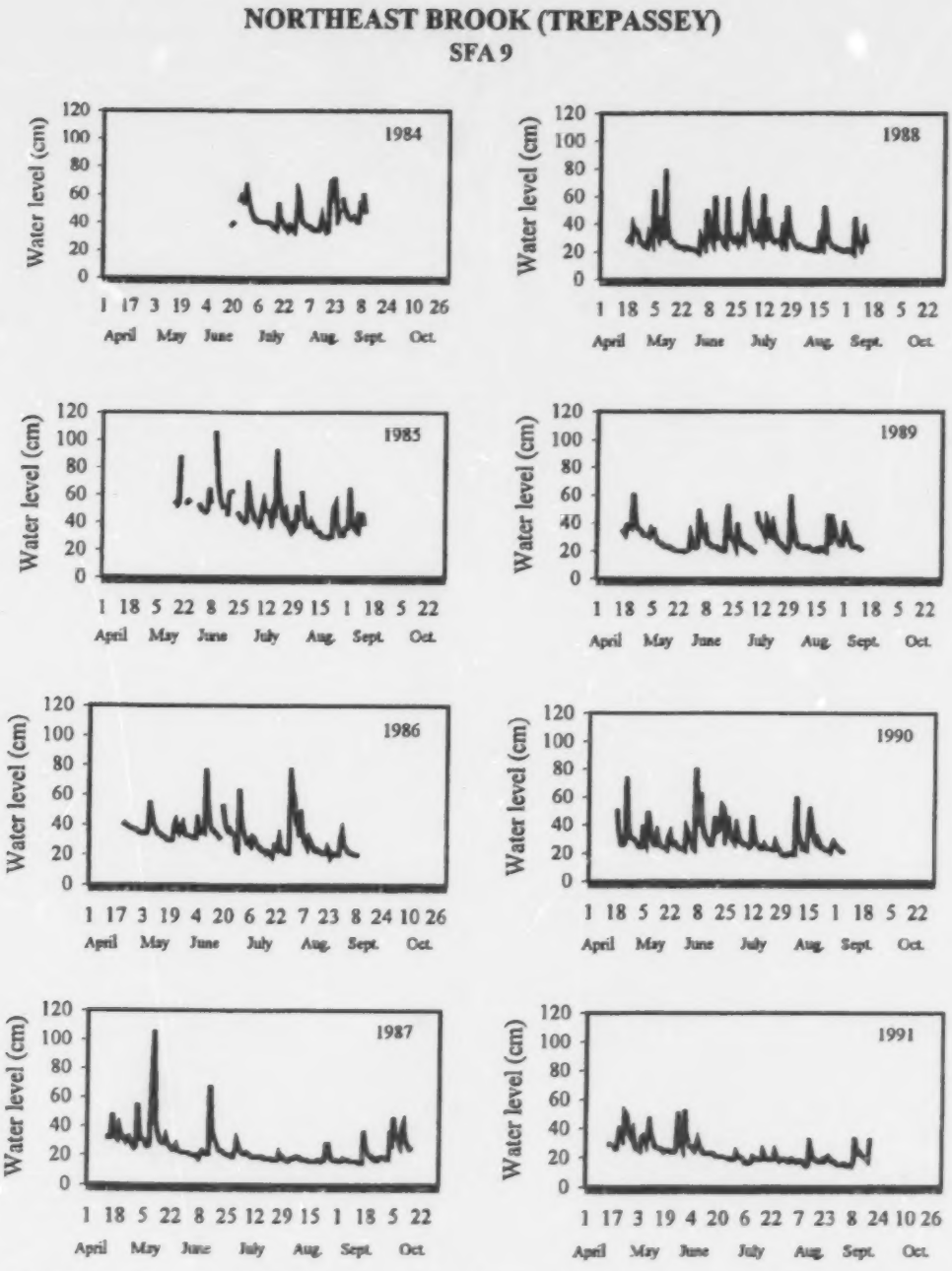

Fig. 33. Mean daily water levels (cm) measured near the counting fence in Northeast Brook (Trepassey), 1984-98.

NORTHEAST BROOK (TREPASSEY)
SFA 9

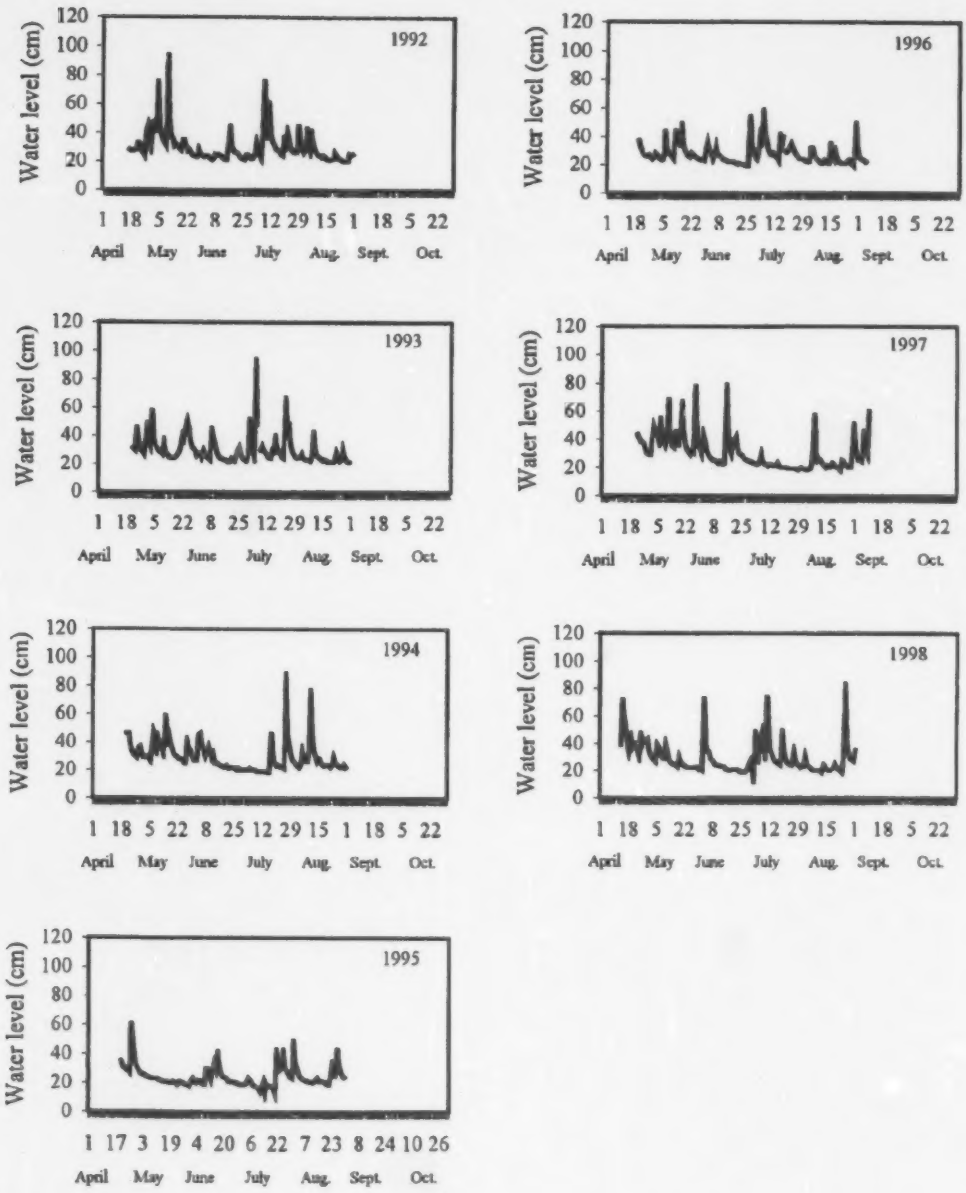

Fig. 33 (cont'd)

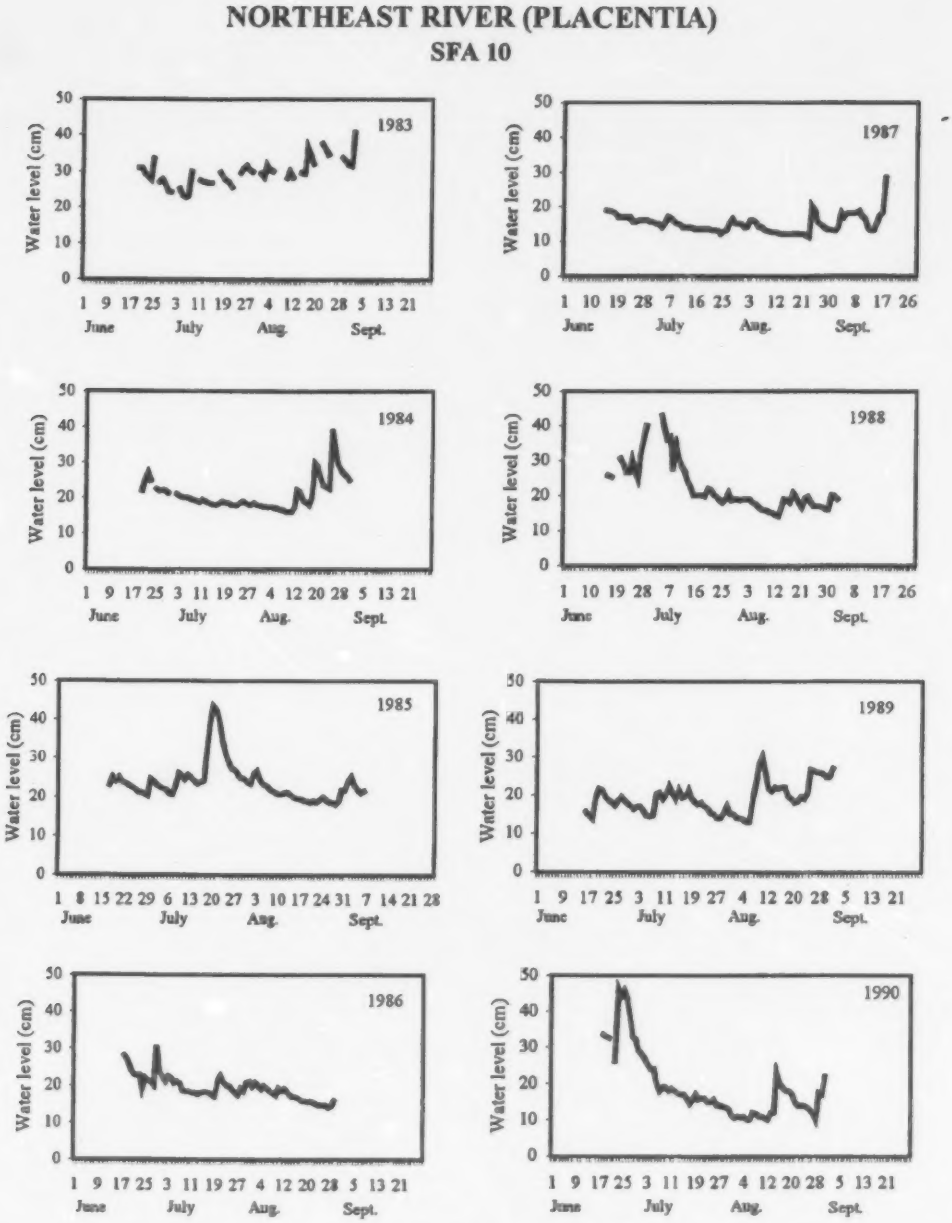

Fig. 34. Mean daily water levels (cm) measured near the fishway in Northeast River (Placentia), 1983-98.

NORTHEAST RIVER (PLACENTIA)
SFA 10

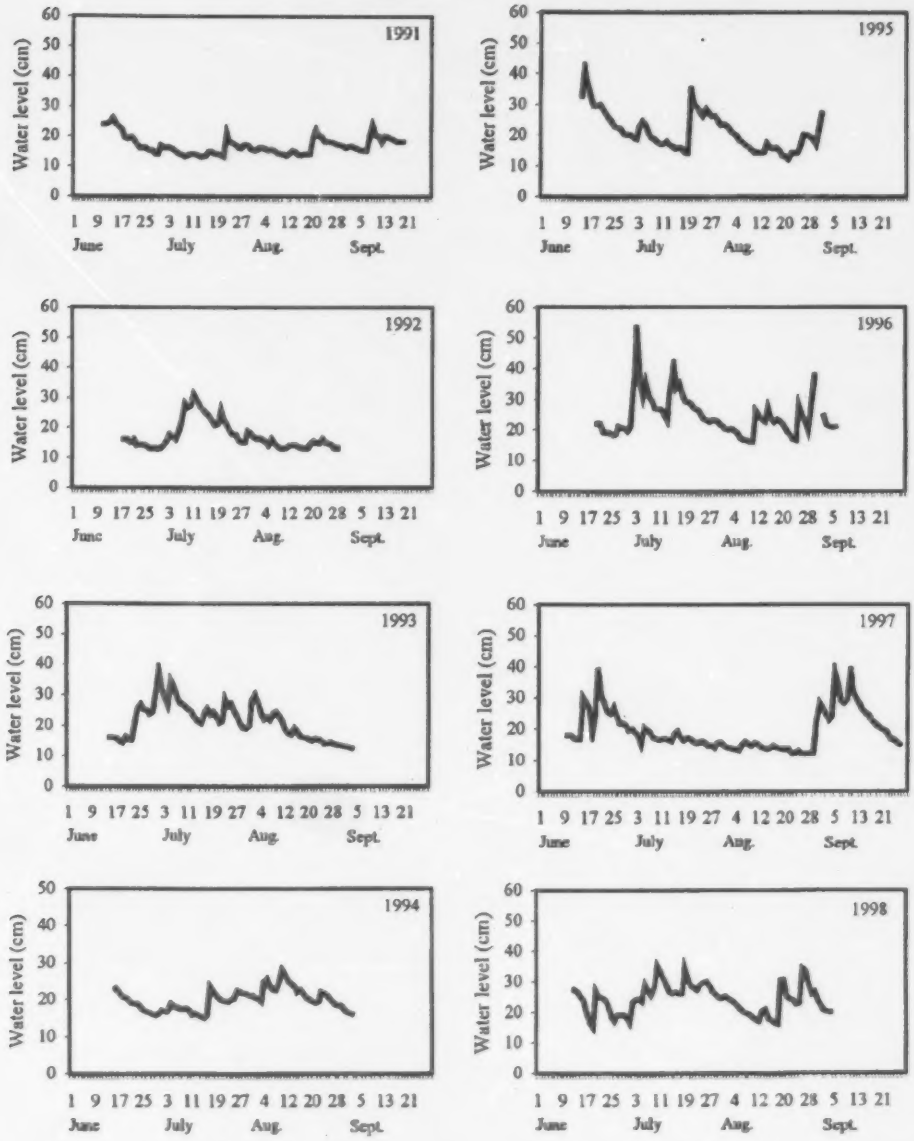

Fig. 34 (cont'd)

Appendix 1. Atlantic salmon recreational fishery catch and effort data for Indian Bay Brook, Bonavista Bay (SFA 5), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	1259	614	.	614	0	.	0	614	.	614	0.49
1975	1013	527	.	527	4	.	4	531	.	531	0.52
1976	917	469	.	469	4	.	4	473	.	473	0.52
1977	1636	893	.	893	6	.	6	899	.	899	0.55
1978	1285	586	.	586	1	.	1	587	.	587	0.46
1979	878	339	.	339	0	.	0	339	.	339	0.39
1980	1196	477	.	477	0	.	0	477	.	477	0.40
1981	1354	820	.	820	0	.	0	820	.	820	0.61
1982	1825	623	.	623	0	.	0	623	.	623	0.34
1983	1759	538	.	538	2	.	2	540	.	540	0.31
1984	1532	545	.	545	0	.	0	545	.	545	0.36
1985	1774	679	.	679	*	.	0	679	.	679	0.38
1986	1303	455	.	455	*	.	0	455	.	455	0.35
1987	772	204	.	204	*	.	0	204	.	204	0.26
1988	1690	774	.	774	*	.	0	774	.	774	0.46
1989	1010	263	.	263	*	.	0	263	.	263	0.26
1990	1298	540		540	*	.	0	540	.	540	0.42
1991	1000	268		268	*	.	0	268	.	268	0.27
1992	1026	350	11	460	*	1	1	350	111	461	0.45
1993	1663	510	225	735	*	0	0	510	225	735	0.44
1994	2080	589	171	760	*	1	1	589	172	761	0.37
1995	1937	683	288	971	*	0	0	683	288	971	0.50
1996	1580	551	36	587	*	0	0	551	36	587	0.37
1997**		205	57	262	*	15	15	205	72	277	
1998**		246	154	400	*	4	4	246	158	404	
84-89 $\bar{X}$	1461.8	543.2	.	543.2	.	.	.	543.2	.	543.2	0.37
95% CL	384.6	246.7	.	246.7	.	.	.	246.7	.	246.7	0.08
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	1260.2	460.0	.	460.0	.	.	.	460.0	.	460.0	0.37
95% CL	350.2	263.9	.	263.9	.	.	.	263.9	.	263.9	0.11
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	1657.2	536.6	166.0	702.6	.	0.4	0.4	536.6	166.4	703.0	0.42
95% CL	504.8	151.9	121.7	239.3	.	0.7	0.7	151.9	121.5	239.0	0.08
N	5	5	5	5	0	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992 - 1996 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY)

Appendix 2. Atlantic salmon recreational fishery catch and effort data for Middle Brook, Bonavista Bay (SFA 5), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	1823	277	.	277	11	.	11	288	.	288	0.16
1975	1635	415	.	415	8	.	8	423	.	423	0.26
1976	1339	280	.	280	2	.	2	282	.	282	0.21
1977	1511	767	.	767	3	.	3	770	.	770	0.51
1978	1322	391	.	391	1	.	1	392	.	392	0.30
1979	211	28	.	28	0	.	0	28	.	28	0.13
1980	1358	542	.	542	2	.	2	544	.	544	0.40
1981	1574	587	.	587	0	.	0	587	.	587	0.37
1982	2481	504	.	504	8	.	8	512	.	512	0.21
1983	1505	372	.	372	20	.	20	392	.	392	0.26
1984	2712	410	.	410	0	.	0	410	.	410	0.15
1985	2319	538	.	538	*	.	0	538	.	538	0.23
1986	2307	789	.	789	*	.	0	789	.	789	0.34
1987	840	187	.	187	*	.	0	187	.	187	0.22
1988	1545	708	.	708	*	.	0	708	.	708	0.46
1989	712	165	.	165	*	.	0	165	.	165	0.23
1990	949	349	.	349	*	.	0	349	.	349	0.37
1991	903	278	.	278	*	.	0	278	.	278	0.31
1992	1584	423	17	440	*	0	0	423	17	440	0.28
1993	1327	299	387	686	*	37	37	299	424	723	0.54
1994	2049	409	122	531	*	0	0	409	122	531	0.26
1995	2657	402	82	484	*	0	0	402	82	484	0.18
1996	2481	476	153	629	*	0	0	476	153	629	0.25
1997**	1821	77	10	87	*	1	1	77	11	88	0.05
1998***		137	147	284	*	16	16	137	163	300	
84-89 $\bar{X}$	1919.0	522.0	.	522.0	.	.	.	522.0	.	522.0	0.27
95% CL	988.5	308.0	.	308.0	.	.	.	308.0	.	308.0	0.15
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	1283.2	457.8	.	457.8	.	.	.	457.8	.	457.8	0.36
95% CL	809.1	341.2	.	341.2	.	.	.	341.2	.	341.2	0.09
N	5	5	0	5	0	0	0	5	0	5	5
92-97 $\bar{X}$	1986.5	347.7	128.5	476.2	.	6.3	6.3	347.7	134.8	482.5	0.24
95% CL	539.8	151.7	145.5	221.8	.	15.8	15.8	151.7	160.0	229.5	0.13
N	6	6	6	6	0	6	6	6	6	6	6

1987 DATA NOT INCLUDED IN MEAN

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992 - 1997 AND ON RETAINED FISH ONLY PRIOR TO 1992

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA WERE OBTAINED FROM A CREEL SURVEY

***DATA WERE OBTAINED FROM THE LICENSE STUB RETURN AND ARE PRELIMINARY.

Appendix 3. Atlantic salmon recreational fishery catch and effort data for Terra Nova River, Bonavista Bay (SFA 5), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	2098	243	.	243	5	.	5	248	.	248	0.12
1975	1723	506	.	506	2	.	2	508	.	508	0.29
1976	1236	424	.	424	7	.	7	431	.	431	0.35
1977	1956	850	.	850	13	.	13	863	.	863	0.44
1978	1608	628	.	628	6	.	6	634	.	634	0.39
1979	910	537	.	537	15	.	15	552	.	552	0.61
1980	872	512	.	512	22	.	22	534	.	534	0.61
1981	1303	739	.	739	33	.	33	772	.	772	0.59
1982	1174	465	.	465	24	.	24	489	.	489	0.42
1983	2157	486	.	486	43	.	43	529	.	529	0.25
1984	2042	636	.	636	0	.	0	636	.	636	0.31
1985	1810	751	.	751	*	.	0	751	.	751	0.41
1986	1485	620	.	620	*	.	0	620	.	620	0.42
1987	1764	546	.	546	*	.	0	546	.	546	0.31
1988	1613	682	.	682	*	.	0	682	.	682	0.42
1989	1946	357	.	357	*	.	0	357	.	357	0.18
1990	2165	624	.	624	*	.	0	624	.	624	0.29
1991	1701	448	.	448	*	.	0	448	.	448	0.26
1992	2488	409	141	550	*	0	0	409	141	550	0.22
1993	3925	484	569	1053	*	62	62	484	631	1115	0.28
1994	5853	822	178	1000	*	44	44	822	222	1044	0.18
1995	6042	696	132	828	*	72	72	696	204	900	0.15
1996	5933	896	260	1156	*	113	113	896	373	1269	0.21
1997**		296	148	444	*	10	10	296	158	454	
1998**		105	263	368	*	18	18	105	281	386	
84-89 $\bar{X}$	1779.2	609.2	.	609.2	.	.	.	609.2	.	609.2	0.34
95% CL	285.8	186.1	.	186.1	.	.	.	186.1	.	186.1	0.13
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	1782.0	546.2	.	546.2	.	.	.	546.2	.	546.2	0.31
95% CL	338.2	170.4	.	170.4	.	.	.	170.4	.	170.4	0.12
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	4848.2	661.4	256.0	917.4	.	58.2	58.2	661.4	314.2	975.6	0.20
95% CL	1966.3	261.3	226.1	294.5	.	51.2	51.2	261.3	244.0	338.3	0.06
N	5	5	5	5	0	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992 - 1996 AND ON RETAINED FISH ONLY PRIOR TO 1992.

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 4. Atlantic salmon recreational fishery catch and effort data for Northeast River, Placentia Bay (SFA 10), 1974-98. Ret. = retained fish; Rel. = released fish.

	Effort	Small (<63 cm)			Large (>=63 cm)			Total (Small + Large)			
Year	Rod Days	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	Ret.	Rel.	Tot.	CPUE
1974	1721	142	.	142	0	.	0	142	.	142	0.08
1975	877	121	.	121	4	.	4	125	.	125	0.14
1976	1164	147	.	147	1	.	1	148	.	148	0.13
1977	1465	180	.	180	1	.	1	181	.	181	0.12
1978	1237	161	.	161	0	.	0	161	.	161	0.13
1979	969	138	.	138	0	.	0	138	.	138	0.14
1980	1612	246	.	246	6	.	6	252	.	252	0.16
1981	2339	349	.	349	0	.	0	349	.	349	0.15
1982	1303	150	.	150	0	.	0	150	.	150	0.12
1983	2037	165	.	165	0	.	0	165	.	165	0.08
1984	988	70	.	70	0	.	0	70	.	70	0.07
1985	1276	173	.	173	*	.	0	173	.	173	0.14
1986	862	234	.	234	*	.	0	234	.	234	0.27
1987	349	36	.	36	*	.	0	36	.	36	0.10
1988	772	186	.	186	*	.	0	186	.	186	0.24
1989	852	210	.	210	*	.	0	210	.	210	0.25
1990	786	173	.	173	*	.	0	173	.	173	0.22
1991	153	19	.	19	*	.	0	19	.	19	0.12
1992	485	37	189	226	*	0	0	37	189	226	0.47
1993	592	132	61	193	*	0	0	132	61	193	0.33
1994	313	39	5	44	*	0	0	39	5	44	0.14
1995	544	127	8	135	*	0	0	127	8	135	0.25
1996	2883	268	7	275	*	0	0	268	7	275	0.10
1997**		95	45	140	*	33	33	95	78	173	
1998**		105	71	176	*	18	18	105	89	194	
84-89 $\bar{X}$	950.0	174.6	.	174.6	.	.	.	174.6	.	174.6	0.18
95% CI.	245.8	78.2	.	78.2	.	.	.	78.2	.	78.2	0.11
N	5	5	0	5	0	0	0	5	0	5	5
86-91 $\bar{X}$	685.0	164.4	.	164.4	.	.	.	164.4	.	164.4	0.24
95% CI.	372.4	105.0	.	105.0	.	.	.	105.0	.	105.0	0.03
N	5	5	0	5	0	0	0	5	0	5	5
92-96 $\bar{X}$	963.4	120.6	54.0	174.6	.	0.0	0.0	120.6	54.0	174.6	0.18
95% CI.	1338.6	117.0	98.1	110.5	.	0.0	0.0	117.0	98.1	110.5	0.19
N	5	5	5	5	0	5	5	5	5	5	5

1987 DATA NOT INCLUDED IN MEAN.

IN THE ABOVE TABLE A PERIOD INDICATES NO DATA FOR THAT YEAR.

CPUE IS BASED ON RETAINED + RELEASED FISH FOR 1992 - 1996 AND ON RETAINED FISH ONLY PRIOR TO 1992

* NOT ALLOWED TO RETAIN LARGE SALMON IN INSULAR NEWFOUNDLAND.

**DATA OBTAINED FROM THE LICENSE STUB RETURN (1998 DATA ARE PRELIMINARY).

Appendix 5a. Maximum and minimum water temperatures (°C) measured at the counting fence in Indian Bay Brook for the months of June, July, and August, 1997-98.

Year		June																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1997	Max.																				20.5	17.7	16.7	15.2	17.2	19.0	17.2	18.3	18.0	19.9	20.6
	Min.																				14.9	14.9	15.3	13.3	12.7	12.6	13.6	13.2	13.9	14.0	14.5
1998	Max.		14.9	11.8	14.1	13.1	11.4	11.3	11.9	11.7	15.3	16.8	18.4	19.5	19.9	18.8	19.5	20.5	20.8	20.5	18.0	19.5	21.1	22.2	23.0	21.1	18.4	16.5	19.9	20.2	17.9
	Min.		12.4	10.3	10.1	10.9	10.4	9.9	10.1	10.3	10.1	10.3	12.5	13.9	14.1	12.9	12.9	14.6	17.2	18.2	16.1	15.1	14.5	14.8	17.0	16.8	15.9	13.9	13.5	14.3	15.9

Year		July																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1997	Max.	20.9	17.6	18.1	18.1	22.1	22.3	23.8	23.8	23.0	22.9	22.1	20.5	23.4	20.3	20.1	19.6	20.0	22.5	24.0	20.9	19.8	19.6	22.8	23.3	22.1	19.5	17.9	24.0	21.8	24.3	24.4
	Min.	14.7	14.9	14.6	14.8	15.8	15.8	15.8	16.5	18.1	18.1	18.0	18.0	17.0	15.6	13.5	13.9	16.4	16.1	17.3	16.8	16.3	16.8	15.3	16.3	15.6	14.8	13.8	15.7	16.4	14.3	16.9
1998	Max.	22.7	20.0	23.4	20.2	18.6	20.5	23.1	20.9	16.9	20.6	17.4	20.3	23.8	22.2	22.4	25.8	25.5	24.9	25.9	23.5	23.4	24.1	21.5	24.8	23.5	22.6	25.0	25.5	23.3	22.6	24.9
	Min.	15.9	16.7	14.7	16.1	16.8	16.5	16.1	16.9	14.8	14.0	14.3	14.8	14.9	17.0	17.5	17.7	19.9	19.8	18.4	19.5	18.6	18.7	17.9	18.2	18.0	17.8	18.0	18.0	18.5	18.8	19.0

Year		August																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1997	Max.	22.9	21.6	24.8	22.0	18.8	23.8	22.5	22.3	25.3	23.1	23.9	22.5	17.7	19.8	21.9	20.5	20.5	18.7	18.4	21.6	22.9	21.4	18.5	17.9	17.7	18.8	19.9	21.1	20.3	16.7	16.1
	Min.	17.8	17.8	17.8	16.4	17.4	16.0	16.3	14.6	17.3	18.9	18.1	16.7	14.8	15.8	15.6	16.5	16.3	14.1	12.9	12.9	13.5	14.4	15.1	14.5	15.1	15.5	15.8	15.2	15.1	13.4	12.4
1998	Max.	25.1	22.8	25.2	25.3	25.1	25.9	24.1	24.0	25.0	27.7	25.6	21.9	22.0	24.4	25.0	23.8	21.9	23.1	22.4	20.9	23.1	23.1	21.3	21.8	19.9	16.1	17.3	17.4	16.1	18.4	20.0
	Min.	17.6	18.1	17.6	17.4	18.7	17.4	19.1	18.2	20.4	20.5	17.9	15.8	17.8	15.6	17.3	18.0	16.7	18.7	17.8	16.4	15.4	17.0	15.0	16.9	16.4	14.4	15.1	15.1	14.1	14.1	14.3

Appendix 5b. Maximum and minimum water temperatures (°C) measured at the counting fence in Indian Bay Brook for the months of September and October, 1997-98.

Year		September																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1997	Max.	19.9	19.5	18.6	17.1	19.6	19.0	21.1	18.5	14.6	15.3	18.1	16.4	16.9	16.9	17.8	16.3	15.3	17.3	15.8	17.2	15.9	14.3	14.1	13.9	15.1	13.6	13.9	15.4	15.9	14.9
	Min.	12.1	15.1	15.1	16.0	13.1	14.1	14.4	14.1	13.5	13.7	13.4	13.9	14.3	15.3	15.1	14.4	13.6	13.5	14.6	14.9	12.7	12.6	13.1	10.8	11.3	11.4	10.1	10.2	11.9	12.0
1998	Max.	18.8	17.5	16.7	15.5	13.9	16.0	14.5	18.5	16.9	17.3	16.6	16.5	17.4	16.0	15.0	14.6	13.9	15.3	15.1	13.6	14.1	14.4	14.6	14.6	15.1	13.9	13.4	14.5	14.7	14.6
	Min.	15.3	15.1	14.1	13.5	12.8	12.1	13.4	13.4	15.9	15.4	14.6	15.0	14.0	14.9	14.4	13.3	12.7	12.0	13.1	12.0	12.3	13.6	12.9	12.1	12.3	12.7	12.6	12.6	12.3	12.8

Year		October																					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1997	Max.	13.9	12.6	12.2	12.0	11.9	11.9	12.4	10.8	10.7	11.3	10.6	9.1	9.6	11.3	9.6	9.9	8.6	8.9	7.7	7.3		
	Min.	12.3	10.3	10.3	10.9	10.8	9.8	9.7	9.6	8.8	9.9	7.9	7.8	8.1	8.0	7.1	8.2	7.7	6.3	5.9	6.3		
1998	Max.	14.3	13.5	12.1	11.8	10.6	9.9	10.8	11.0	11.1	11.0	9.9	9.7	9.8	9.9	8.8	8.9	9.5	9.8	9.7	9.6	9.4	8.4
	Min.	13.3	12.0	10.9	10.3	9.8	8.8	8.1	9.3	8.4	8.3	9.1	8.9	8.6	7.7	8.4	8.1	8.4	8.6	8.9	8.4	8.1	7.7

Appendix 6a. Maximum and minimum water temperatures (°C) measured at the fishway in Middle Brook for the month of June, 1985-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1985	Max.																		16.1	15.6	14.0	14.0	13.0	16.1	15.1	17.1	16.1	18.1	20.2	19.1	16.6
	Min.																		13.0	13.0	12.0	13.5	12.5	12.0	12.0	13.0	12.0	12.0	13.0	17.1	13.0
1986	Max.																	15.7	17.7	17.6	14.7	18.1	19.0	19.4	19.2	18.7	18.3	15.2	19.9	15.7	18.3
	Min.																	15.4	12.8	12.1	12.8	11.6	12.4	14.7	15.9	15.4	14.6	13.7	13.2	13.5	14.1
1987	Max.											14.4	15.9	14.8	17.5	14.6	14.9	16.8	17.8	16.7	15.2	16.6	19.1	19.8	18.6	15.7	16.0	17.4	19.6	20.4	19.6
	Min.											14.4	12.6	13.6	12.8	11.9	12.8	13.2	13.1	13.5	13.9	13.3	13.5	14.3	14.9	13.8	13.1	13.1	13.9	14.9	17.5
1988	Max.									10.9	10.8	11.2	13.2	13.0	13.4	11.3	16.5	15.9	12.7	17.0	18.5	17.2	17.1	16.0	17.1	17.0	14.6	16.5	20.0	19.1	17.6
	Min.									9.9	10.0	9.3	10.1	11.3	11.0	9.7	10.8	12.7	11.7	12.3	14.4	15.4	15.0	14.1	14.8	14.3	12.6	12.4	15.9	17.0	15.4
1989	Max.												12.3	12.8	12.2	17.7	19.3	21.8	16.7	19.6	19.6	16.2	16.1	17.3	19.6	22.4	17.3	19.0	23.0	23.2	21.5
	Min.												11.3	10.0	10.0	10.2	12.3	14.0	14.3	15.1	16.2	15.0	14.3	14.3	14.6	15.0	15.3	15.2	16.5	17.6	17.1
1990	Max.										10.1	10.2	10.1	15.1	16.3	9.6	10.1	22.2	16.1	12.9	12.9	16.1	16.2	16.6	16.6	20.2	20.1	16.3	16.3	17.9	17.6
	Min.										10.0	10.0	8.2	8.2	9.7	7.8	5.8	5.2	10.4	10.3	10.4	10.3	10.7	10.7	14.7	14.7	15.2	15.1	14.6	14.6	15.9
1991	Max.										13.8	12.6	9.3	11.9	11.0	11.6	14.6	15.5	14.0	15.8	15.9	14.1	16.1	18.0	16.5	17.0	18.2	17.4	16.1	13.9	16.4
	Min.										10.9	9.5	8.6	8.7	9.1	10.2	10.1	10.8	11.4	11.2	13.6	12.9	12.2	13.4	11.1	10.5	11.6	12.1	13.1	13.3	11.8
1992	Max.																	15.0	15.9	14.4	16.1	17.3	15.9	16.1	17.2	17.9	16.4	15.9	15.4	14.9	14.8
	Min.																	13.9	12.3	12.6	12.8	12.6	13.1	14.1	14.2	14.4	14.6	13.9	14.1	13.6	12.4
1993	Max.														14.1	17.8	19.0	19.5	18.9	15.1	16.0	17.1	12.9	10.6	14.9	14.1	12.4	14.2	16.1	15.3	14.7
	Min.														11.6	10.8	12.6	11.7	15.1	11.9	11.0	11.9	10.6	9.5	9.3	11.9	10.9	10.6	12.6	13.1	11.7
1994	Max.														13.3	17.5	17.0	19.1	18.8	18.4	19.2	17.1	18.1	18.9	16.5	17.8	18.9	19.0	20.0	21.0	21.8
	Min.														12.6	12.7	15.0	13.8	13.8	12.4	13.9	14.4	13.2	16.2	14.9	14.1	13.6	14.1	14.3	16.7	17.9
1995	Max.														14.7	15.3	15.3	17.7	16.8	16.5	15.5	17.8	17.9	19.9	15.9	13.9	16.0	14.3	15.3	13.8	12.8
	Min.														13.8	12.3	12.6	12.7	14.1	13.4	12.2	12.8	13.6	14.4	13.1	12.4	10.9	12.6	12.4	11.9	11.6
1996	Max.					16.4	16.5	17.6	17.0	16.0	17.2	15.2	16.9	15.1	18.6	20.0	18.4	15.6	17.0	16.1	14.8	12.4	12.2	15.4	17.5	18.0	15.3	14.4	15.1	18.8	20.6
	Min.					15.7	13.8	14.0	13.9	13.0	12.0	13.3	11.8	12.9	13.2	15.4	13.9	12.1	12.9	13.2	11.8	10.9	10.6	10.4	11.1	11.6	12.4	11.5	12.1	12.8	14.5
1997	Max.									19.3	12.3	13.0	11.8	11.8	15.0	17.0	17.2	16.5	17.9	20.3	20.9	17.8	16.9	14.8	17.5	18.3	17.8	19.0	19.2	20.0	20.5
	Min.									9.8	10.4	9.4	9.4	9.0	11.3	12.2	13.0	13.9	15.1	15.1	15.1	13.9	14.9	13.1	12.3	12.9	14.7	13.1	14.6	14.5	14.5
1998	Max.	14.9	15.8	12.4	14.0	12.9																									
	Min.	11.0	10.9	10.1	9.3	10.3																									

Appendix 6b. Maximum and minimum water temperatures (°C) measured at the fishway in Middle Brook for the month of July, 1985-98.

Year		Date																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1985	Max.	18.1	19.1	19.1	19.1	19.1	21.2	23.2	21.2	20.7	22.2	22.2	21.2	22.2	22.2	22.2	18.6	19.6	18.1	17.1											
	Min.	16.1	15.6	14.0	17.1	17.1	17.1	19.1	19.1	18.1	19.1	20.2	19.1	19.1	19.1	18.1	18.1	17.6	17.1	16.1											
1986	Max.	16.1	17.0	18.1	15.5	15.4	14.4	16.6	16.5	16.3	18.1	17.7	15.2	15.1	18.9	15.8	14.2	16.1	19.0	19.9	16.7	17.8	20.3	20.4	19.6	19.9	20.6	21.2	21.4	15.2	15.3	19.2
	Min.	14.0	12.7	14.0	13.4	13.1	13.5	12.7	13.2	13.8	13.5	14.7	13.7	13.1	13.0	14.0	13.2	13.1	14.3	14.8	15.2	15.4	16.8	15.9	15.8	16.2	18.0	17.1	16.0	14.2	14.0	13.7
1987	Max.	22.4	19.1	20.8	22.2	20.8	20.3	21.6	22.6	24.5	26.2	23.4	21.7	25.9	25.7	26.5	26.1	26.4	26.3	24.8	24.1	24.1	23.8	25.0	26.4	24.7	25.9	23.5	23.3	25.0	25.6	26.0
	Min.	17.3	17.0	14.7	17.4	17.2	14.8	14.5	16.9	18.3	20.1	19.6	19.9	23.1	22.9	25.3	25.7	23.3	20.9	21.0	19.6	17.8	18.0	17.5	19.4	21.3	20.4	20.1	19.1	18.8	19.3	20.6
1988	Max.	18.6	17.5	17.0	19.7	20.9	19.5	18.6	18.7	20.4	22.6	20.4	20.8	20.1	19.4	19.0	20.4	19.2	22.2	22.7	20.9	21.3	19.9	22.5	22.3	20.5	20.8	21.6	23.0	23.3	25.1	23.5
	Min.	15.1	15.2	15.8	15.3	16.7	17.5	16.3	15.6	17.5	18.9	17.9	17.1	18.3	16.2	16.0	16.3	16.6	16.5	18.3	17.9	16.8	18.3	17.4	17.6	18.0	17.1	16.5	17.5	19.9	19.8	21.1
1989	Max.	18.8	20.1	21.4	20.8	18.7	20.6	21.9	24.0	17.4	22.9	20.9	21.2	20.1	20.4	16.6	23.1	23.4	24.5	22.6	23.3	22.2	19.6	21.2	23.2	20.9	23.3	25.5	25.4	23.2	24.3	24.0
	Min.	14.8	14.6	14.8	14.8	16.2	16.4	17.4	17.8	15.8	15.7	17.8	17.0	16.6	14.9	14.1	15.2	17.5	17.1	17.6	17.9	17.9	16.2	16.6	16.8	18.0	18.3	19.4	20.4	18.8	18.8	18.2
1990	Max.	20.1	19.5	18.2	18.0	13.9	13.8	14.2	14.1	13.8	13.7	16.1	15.8	15.8	14.7	15.0	15.4	18.9	19.0	20.9	20.6	20.5	20.2	21.0	20.4	20.9	20.5	19.6	19.2	18.8	18.8	19.4
	Min.	15.7	16.8	16.7	14.0	13.6	13.1	13.0	13.6	13.4	13.1	13.0	12.8	12.6	12.7	12.6	14.6	14.8	16.5	16.4	18.5	18.1	18.2	17.9	17.7	17.6	17.9	18.0	16.7	16.8	15.6	15.5
1991	Max.	15.2	14.5	14.9	18.3	17.0	13.9	15.4	14.6	15.1	15.4	17.1	19.3	17.5	16.1	20.6	20.6	19.1	19.6	22.1	23.5	21.0	20.2	19.6	22.5	23.0	20.5	21.0	24.0	24.4	26.0	23.5
	Min.	12.9	12.9	12.4	12.3	14.4	12.1	11.8	13.1	13.3	13.6	13.9	13.9	13.5	14.6	14.4	16.5	16.5	14.4	15.4	17.8	17.5	15.6	15.9	16.5	16.4	18.0	17.6	17.9	17.0	18.9	18.9
1992	Max.	14.3	13.4	12.1	11.3	14.1	13.3	12.7	15.3	17.0	16.2	15.4	14.9	17.1	17.5	19.0	16.4	14.9	16.5	16.5	19.8	18.9	19.1	19.0	21.0	21.3	20.5	19.0	19.8	19.6	21.0	20.3
	Min.	12.9	12.3	11.3	10.6	10.2	11.6	11.6	12.0	13.6	13.3	12.7	13.1	12.3	13.1	14.3	13.1	12.9	12.6	14.1	14.4	13.9	15.1	15.1	16.1	15.6	17.4	17.6	15.5	15.4	16.7	17.7
1993	Max.	17.8	18.4	18.4	15.3	15.1	14.9	17.5	15.8	14.5	16.2	16.6	19.5	17.1	17.0	16.6	16.5	15.2	14.9	15.6	17.5	15.1	18.9	18.4	15.2	16.8	18.0	18.7	17.0	18.2	18.0	20.6
	Min.	12.4	13.8	14.9	13.3	13.6	13.3	13.6	13.7	13.1	12.6	14.1	14.3	13.8	14.3	13.4	13.1	14.3	13.9	13.6	14.0	13.9	14.0	15.1	13.8	13.1	14.1	14.8	15.6	15.8	16.8	17.5
1994	Max.	21.7	22.5	22.5	21.4	19.1	19.1	19.1	22.1	20.1	20.5	21.4	22.6																			
	Min.	17.3	18.6	18.5	17.5	17.5	10.9	10.9	16.4	17.3	16.9	17.0	17.0																			
1995	Max.	16.3	13.7	17.6	18.7	21.2	22.5	23.9	22.5	22.3	22.0	23.3	23.8	23.0	22.4	20.8	16.3	19.9	17.4	19.1	21.0	19.7	22.1	21.1	23.3	22.5	21.3	22.6	23.3	20.9	20.8	21.3
	Min.	10.9	12.9	12.4	14.6	16.1	17.2	18.4	15.8	19.0	19.3	18.8	19.3	18.9	19.1	16.6	14.8	14.0	14.4	14.3	16.6	17.8	16.4	17.6	18.5	18.9	19.2	17.5	17.0	17.3	18.1	16.7
1996	Max.	21.8	22.5	20.0	21.0	19.9	21.1	19.9	19.8	20.5	18.2	21.9	21.8	22.9	21.4	19.8	18.5	21.4	21.2	20.2	19.2	20.5	19.5	19.3	19.0	21.2	21.8	21.0	20.0	19.6	22.4	23.8
	Min.	15.9	17.2	17.8	17.1	17.9	17.3	18.0	16.2	16.7	16.6	17.1	17.7	17.6	18.2	15.1	16.6	17.0	18.1	18.1	17.7	18.2	18.1	17.2	17.1	17.1	16.9	19.4	18.5	17.2	17.1	19.4
1997	Max.	22.0	19.0	19.0	19.4	22.3	22.8	23.8	22.8	23.4	23.1	22.3	20.9	22.7	19.6	20.1	19.3	20.0	23.5	23.3	20.3	20.8	20.9	22.5	23.1	21.3	19.8	18.0	23.4	20.5	23.8	24.3
	Min.	15.1	14.9	15.8	16.1	16.4	16.9	16.9	16.9	19.5	18.3	18.5	18.3	17.8	15.8	13.7	14.6	16.9	17.5	17.9	17.3	16.5	17.1	15.4	16.6	16.1	15.6	15.3	15.7	16.8	15.2	17.0
1998	Max.																															
	Min.																															

Appendix 6c. Maximum and minimum water temperatures (°C) measured at the fishway in Middle Brook for the month of August, 1985-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1985	Max.																															
	Min.																															
1986	Max.	14.2	17.3	20.3	19.3	21.6	20.4	21.2	19.8	20.9	18.1	18.8	20.4	21.9	19.6																	
	Min.	14.0	15.2	16.7	17.9	16.8	16.3	17.4	17.6	17.7	16.4	16.5	16.4	18.5	18.7																	
1987	Max.	24.4	24.0	21.0	24.6	25.6	24.7	25.1	25.9	23.8	25.6	25.2	22.4	17.7	21.5	22.2	21.0	23.2	21.2	25.7	23.1	21.5	22.9	20.4	20.1	20.2	18.6	19.0	20.4	22.0	19.7	20.1
	Min.	20.6	19.1	18.8	16.8	19.7	19.1	17.8	18.3	18.5	18.9	18.2	18.0	14.8	13.0	16.8	17.6	17.8	17.5	18.0	19.1	18.5	17.3	17.6	16.8	14.2	14.4	13.7	13.4	14.5	15.5	15.3
1988	Max.	25.0	22.6	22.8	23.1	25.1	22.3	19.6	21.6	24.9	22.9	23.3	25.6	23.3	20.9	21.5	23.3	23.3	19.0	18.5	19.1	19.3	17.9	16.9	20.1	22.3	22.9	21.0	24.0	24.0	22.8	21.1
	Min.	20.4	18.9	18.6	17.6	18.7	17.5	17.7	19.3	19.8	19.8	18.5	19.0	20.3	17.4	15.0	16.7	17.7	15.7	15.8	14.9	14.1	15.8	13.4	13.7	15.9	16.0	16.5	18.3	19.5	20.1	18.0
1989	Max.	25.3	26.6	27.4	25.5	22.1	23.6	22.9	24.0	25.4	24.5	25.9	26.3	20.8	19.9	27.7	27.7	27.7	18.8	23.6	27.5	23.9	23.6	16.3	17.9	19.1	18.6	16.5	15.9	19.2	21.1	18.8
	Min.	18.5	19.5	19.1	19.6	19.8	20.5	20.0	21.2	19.1	19.3	20.1	20.8	17.6	18.0	18.9	21.1	16.4	13.2	15.7	17.2	16.5	15.9	13.0	14.0	14.4	14.5	13.3	12.6	14.8	15.7	15.1
1990	Max.	18.4	18.3	18.4	18.0	18.7	19.0	18.5	20.5	20.2	15.4	14.9	18.9	18.3	16.9	16.9	18.3	18.4	19.4	19.1	20.2	19.8	17.2	17.1	21.1	20.3	22.2	21.7	18.3	17.6	18.6	18.3
	Min.	15.0	15.0	16.3	16.3	15.1	15.0	14.9	15.1	15.5	14.8	13.3	13.1	15.6	15.2	15.3	15.2	15.4	15.4	16.1	16.0	16.0	16.0	15.6	15.4	15.1	14.9	17.1	16.9	16.3	16.1	16.0
1991	Max.	18.6	16.4	16.3	20.6	17.6	17.7	17.9	20.5	22.3	20.3	20.1	22.6	23.8	23.5	20.4	22.8	24.2	21.4	18.4	18.9	17.1	21.3	20.8	19.4	19.4	20.6	19.5	21.1	18.3	16.5	16.3
	Min.	16.2	14.8	14.2	14.1	14.1	13.2	13.8	13.4	15.5	16.8	16.8	16.8	18.0	18.9	17.1	16.7	17.6	18.8	15.3	15.1	15.4	16.8	16.0	14.4	14.8	15.9	14.3	14.5	16.0	15.1	12.9
1992	Max.	18.8	18.4	19.3	19.0	18.1	19.6	19.6	20.1	21.4	21.5	21.0	22.2	20.3	19.1	21.0	21.1	21.0	22.5	20.9	20.6	21.9	19.0	18.8	17.5	17.5	18.3	17.0	16.5			
	Min.	17.0	15.3	14.8	16.6	16.8	16.5	16.9	16.8	17.2	18.1	18.6	18.6	17.6	16.3	16.5	16.9	17.2	17.9	19.2	17.9	18.8	16.5	15.4	16.2	16.5	14.4	15.0	16.1			
1993	Max.	21.9	22.6	23.0	22.3	22.5	22.6	21.8	22.3	21.5	21.4	21.5	21.6	21.5	19.3	20.5	20.6	20.9	21.9	21.0	19.4	18.5	20.9	20.3	19.0	19.1	18.0	15.3	17.9	16.4	15.5	14.4
	Min.	18.4	18.6	20.0	20.9	20.1	20.1	19.9	19.0	18.8	18.0	18.0	19.3	18.3	18.1	17.3	17.7	18.7	18.1	18.0	18.0	17.0	15.4	17.0	17.0	16.5	14.6	13.8	14.1	14.1	12.8	12.8
1994	Max.																															
	Min.																															
1995	Max.	19.9	21.5	22.4	20.4	21.3	22.0	23.5	25.0	25.0	25.0	25.3	24.4	22.0	21.3	19.6	22.4	19.7	20.0	19.3	22.7	23.6	21.1	16.9	16.3	18.5	17.2	16.8	19.2	17.8	16.0	
	Min.	17.3	14.9	15.4	15.5	17.4	17.3	17.3	19.2	18.4	18.8	19.2	20.0	15.8	13.9	17.0	18.1	16.0	14.1	15.4	15.9	19.5	16.4	14.9	14.1	14.9	14.6	13.3	13.3	14.4	14.0	
1996	Max.	24.1	22.2	22.0	24.4	24.5	26.1	25.7	26.6	26.2	26.2	25.6	24.3	24.1	21.9	22.4	23.6	24.0	24.1	22.5	23.5	24.2	24.0	24.1	21.5	23.4	22.5	22.0	23.9	20.8	22.4	20.2
	Min.	19.5	19.6	19.4	18.9	19.1	21.5	20.0	21.7	21.2	21.0	22.2	21.0	20.3	20.0	19.2	17.9	18.6	20.0	19.4	16.8	17.2	18.0	17.3	18.9	19.0	18.0	17.0	17.2	18.3	17.2	15.7
1997	Max.	24.0	21.5	25.5	21.5	19.3	22.4	22.7	22.3	24.6	22.9	25.1	22.9	18.7	19.2	21.5	19.5	20.2	17.7	17.8	22.3	22.4	19.8	20.1	19.2	19.0	19.0	21.1	21.5	19.3	16.9	16.9
	Min.	18.5	18.3	18.5	18.0	17.5	16.5	17.1	16.1	18.3	19.1	19.3	17.0	15.1	16.5	15.9	17.3	16.5	14.9	13.4	13.6	15.4	15.4	15.6	16.1	16.5	16.5	16.6	16.4	15.4	14.6	12.6
1998	Max.																															
	Min.																															

Appendix 6d. Maximum and minimum water temperatures (°C) measured at the fishway in Middle Brook for the month of September, 1985-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1985	Max.																														
	Min.																														
1986	Max.																														
	Min.																														
1987	Max.	19.4	18.6	18.8	16.8	14.5	14.5	15.0	13.4	11.7	13.7	14.3	16.8	17.2	18.4	16.8	17.8	17.5	16.6	11.9											
	Min.	12.9	15.9	13.5	12.3	12.1	12.4	13.6	11.6	10.7	10.9	10.8	9.6	9.6	11.4	13.7	12.9	14.7	12.5	10.4											
1988	Max.	22.6																													
	Min.	16.4																													
1989	Max.																														
	Min.																														
1990	Max.	21.7	20.4	23.8	23.5	24.2	23.4	22.5	22.0	24.0	23.4	19.4	19.3	17.6																	
	Min.	16.1	17.9	17.7	18.8	18.7	18.8	18.7	17.9	17.6	19.2	18.8	17.3	17.3																	
1991	Max.	13.4	15.3	17.4	19.6	16.7	15.4	14.9	15.4	13.6	14.2	14.0	13.5	12.6	14.1	15.1	14.4	17.6	15.6	15.1											
	Min.	11.9	11.2	13.2	14.4	14.7	14.8	14.2	13.0	11.6	11.6	12.3	12.3	11.6	11.1	11.6	13.1	13.6	12.8	14.6											
1992	Max.																														
	Min.																														
1993	Max.	18.0	16.3																												
	Min.	13.0	14.1																												
1994	Max.																														
	Min.																														
1995	Max.																														
	Min.																														
1996	Max.	21.0	21.0	19.4	17.4																										
	Min.	16.5	15.7	13.7	14.8																										
1997	Max.	18.5	19.6	17.8	18.6	19.8	19.0	20.4	18.0	15.1	15.4	17.5	17.5	16.5	17.1	18.3	16.5	15.1	17.8	16.0	17.6	16.4	14.8	14.6	13.0						
	Min.	12.9	15.9	15.8	16.7	14.3	15.1	14.9	14.9	14.3	14.3	13.9	14.8	15.2	15.6	15.1	15.3	13.9	13.7	15.1	15.3	13.3	13.4	13.3	11.4						
1998	Max.																														
	Min.																														

Appendix 7a. Maximum and minimum water temperatures (°C) measured at the fishway in Lower Terra Nova River for the month of June, 1985-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1985	Max.																														
	Min.																														
1986	Max.																		14.9	14.5	14.1	14.4	15.6	17.3	17.5	16.8	16.1	15.9	16.0	15.9	15.5
	Min.																		13.7	12.9	13.4	12.5	13.6	15.3	16.8	15.5	15.1	14.9	13.8	14.8	14.6
1987	Max.															14.9	14.5	15.1	15.9	16.0	15.7	14.7	15.4	16.5	16.6	16.3	15.0	15.1	16.6	17.9	18.4
	Min.															14.8	13.7	14.2	14.6	15.5	14.3	13.8	13.9	15.0	15.6	15.3	14.2	14.1	14.6	15.9	17.4
1988	Max.																												18.6	18.9	18.5
	Min.																												16.9	18.6	17.4
1989	Max.												13.5	12.6	11.5	12.6	14.4	16.7	16.8	17.0	17.3	17.4	16.5	16.1	17.4	19.6	19.7	19.6	20.9	21.0	20.1
	Min.												12.2	11.6	10.5	10.4	12.2	14.0	15.9	15.9	16.6	16.4	15.6	15.5	15.8	17.2	18.4	18.3	18.7	19.3	18.6
1990	Max.										14.0	13.7	13.0	14.5	16.2	16.3	17.1	17.3	17.2	16.0	12.2	10.6	10.2	12.0	12.0	15.8	17.5	17.6	17.1	16.9	16.7
	Min.										12.9	12.1	11.6	11.7	14.5	16.0	16.2	16.1	16.2	12.6	10.5	9.0	8.3	9.4	11.3	12.1	15.5	16.5	16.3	15.8	15.5
1991	Max.									9.9	12.6	12.9	12.4	11.9	12.2	11.6	12.6	14.4	14.6	16.6	16.7	16.0	14.1	15.4	16.0	16.6	17.5	18.1	18.1	16.1	13.9
	Min.									9.7	9.1	12.2	10.9	10.4	11.4	10.7	10.1	11.3	13.1	13.6	15.8	13.6	12.1	12.6	13.8	14.4	15.0	16.3	16.2	14.0	12.4
1992	Max.																			13.0	15.4	16.5	16.4	15.6	15.3	16.8	16.6	15.4	15.1	14.4	13.4
	Min.																			12.4	12.4	14.1	14.9	14.3	14.0	14.9	15.5	14.5	14.1	13.6	11.9
1993	Max.																														
	Min.																														
1994	Max.												16.1	16.4	16.4	16.5	17.5	18.3	18.3	17.8	16.7	16.1	16.5	17.0	17.0	15.8	16.9	17.9	18.7	20.0	21.5
	Min.												14.9	14.6	14.4	13.9	16.3	16.1	16.3	15.6	14.6	14.9	13.9	15.9	15.5	13.9	14.4	15.3	16.4	18.0	19.3
1995	Max.												13.6	14.6	16.4	16.5	16.6	16.6	16.3	16.3	15.3	14.7	15.4	16.6	17.8	17.6	15.4	13.9	13.3	13.3	13.4	13.2
	Min.												13.4	12.4	14.6	15.9	15.6	15.6	14.3	14.4	14.2	13.1	12.6	14.0	15.6	15.6	14.1	11.7	11.7	11.9	12.2	12.3
1996	Max.			17.2	17.6	17.3	16.6	14.4	14.4	14.4	14.4	14.4	16.8	17.9	17.6	16.0	14.4	14.9	14.9	12.8	10.8	12.0	14.6	17.0	17.1	15.2	14.4	16.1	18.4		
	Min.			16.0	15.8	15.8	13.6	12.1	12.9	11.8	13.0	13.9	16.2	16.1	14.4	13.1	13.2	12.9	10.8	9.6	9.4	10.9	13.8	15.4	13.8	12.9	13.1	15.1			
1997	Max.												13.6	13.3	11.9	14.1	16.1	16.2	16.9	18.5	18.9	19.5	19.4	17.4	15.9	13.1	15.3	16.1	17.1	18.0	18.3	19.3
	Min.												12.9	11.7	11.0	11.6	13.4	14.3	15.2	16.4	17.1	17.3	17.1	15.9	12.9	11.5	12.0	14.6	14.9	15.9	16.4	16.9
1998	Max.									9.8	9.9	12.7	15.6	17.5	18.6	19.5	20.6	20.7	20.2	19.8	20.4	19.9	17.7	17.9	18.9	20.0	21.4	20.9	18.1	16.0	17.2	17.3
	Min.									9.3	9.3	9.4	11.8	14.4	15.9	17.1	18.2	19.1	18.2	18.5	19.4	17.5	16.1	16.3	17.0	18.4	19.8	18.4	15.8	14.6	14.6	16.3

Appendix 7b. Maximum and minimum water temperatures (°C) measured at the fishway in Lower Terra Nova River for the month of July, 1985-98.

Year		Date																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1985	Max.																								19.3	20.3	20.3	20.3	19.8	19.8	19.8	19.8
	Min.																								18.8	18.8	18.8	19.8	19.3	18.8	18.3	18.3
1986	Max.	16.2	15.4	15.7	15.3	15.3	14.8	14.6	14.5	15.3	16.4	16.7	15.8	14.2	16.0	15.8	15.0	14.3	16.7	18.6	18.4	18.3	19.6	19.6	19.4	18.6	19.3	21.0	20.8	19.1	16.3	15.4
	Min.	15.2	14.1	14.1	14.5	14.3	13.8	13.0	13.4	14.0	14.9	15.8	14.4	13.7	13.6	15.5	14.1	13.5	13.9	16.7	17.5	17.6	17.5	18.7	18.6	17.5	18.1	19.0	19.6	17.0	14.4	13.9
1987	Max.	18.6	18.3	18.1	18.2	17.8	17.3	18.2	20.7	21.4	22.4	22.6	23.4	24.4	25.7	25.7	25.4	25.2	24.1	22.3	21.7	20.9	20.7	20.8	22.1	21.7	22.9	22.0	21.0	21.6	22.2	23.8
	Min.	17.1	17.7	16.4	17.3	17.0	15.6	16.2	17.2	19.4	20.2	20.9	20.9	22.3	23.1	24.2	24.1	24.3	21.9	21.2	20.0	18.9	17.4	18.2	19.0	20.4	20.4	20.6	19.5	18.8	19.3	20.4
1988	Max.	17.6	17.7	18.4	18.8	20.1	20.4	20.1	19.7	20.2	21.7	21.5	20.7	20.9	19.1	19.3	19.8	20.1	20.9	21.5	21.7	20.9	21.3	20.4	20.9	20.9	20.6	21.6	22.0	22.1	23.2	23.4
	Min.	16.7	16.8	17.6	17.0	18.1	19.6	18.8	18.4	19.1	19.7	20.2	19.9	19.6	17.9	18.4	18.6	19.2	18.6	20.2	20.5	19.4	20.0	19.0	19.5	20.1	19.4	19.8	20.6	21.4	21.9	23.1
1989	Max.	19.0	18.5	19.0	19.5	17.7	18.3	18.6	19.4	17.8	19.0	20.0	20.2	19.3	19.0	17.0	18.3	19.3	20.9	21.9	21.4	21.0	19.3	18.7	19.2	18.8	20.0	21.7	22.4	21.7	22.0	21.1
	Min.	17.0	17.1	17.1	17.5	16.5	16.7	17.7	17.6	16.2	16.4	18.4	18.4	17.8	16.8	15.5	15.7	17.4	18.7	20.0	19.8	19.2	17.5	17.2	17.5	18.0	18.1	19.3	21.0	20.5	20.2	19.3
1990	Max.	15.8	15.6	15.1	14.5	13.8	14.6	14.0	13.3	13.0	13.9	15.1	15.6	15.4	15.3	15.5	15.5	14.9	15.8	17.3	17.6	17.6	18.1	18.1	17.0	19.4	19.5	17.9	17.5	16.4	16.3	16.8
	Min.	14.2	14.4	14.1	13.8	12.6	12.2	12.7	11.3	12.3	12.5	13.3	14.2	14.2	14.0	13.7	14.6	14.2	14.3	15.4	16.5	16.8	16.5	16.6	15.8	17.1	18.2	16.6	16.4	15.2	15.9	16.2
1991	Max.	13.5	13.0	13.1	14.7	15.2	15.1	14.8	14.6	15.8	15.2	15.6	16.6	16.5	16.3	18.6	18.8	19.0	19.1	20.4	21.9	20.9	19.5	18.8	19.4	20.4	19.1	19.6	21.3	21.8	22.5	21.6
	Min.	12.4	12.1	12.2	12.6	14.5	13.7	13.2	14.1	14.1	14.6	14.7	15.1	15.8	15.8	15.9	17.6	18.3	17.5	17.4	19.3	19.6	18.5	17.7	16.9	17.0	18.1	18.1	18.6	18.8	19.4	19.9
1992	Max.	13.2	13.3	12.1	10.6	11.3	11.9	13.1	15.1	16.8	16.9	15.9	15.6	14.5	16.1	17.1	17.0	16.3	15.0	15.4	17.8	18.3	19.0	18.7	18.4	19.3	19.6	19.6	19.0	19.0	19.3	19.4
	Min.	12.1	12.2	10.6	9.4	8.6	10.5	11.9	13.1	14.5	15.9	15.3	13.8	12.4	13.4	14.9	16.1	14.5	13.1	14.3	14.8	16.1	17.5	16.7	16.9	16.9	18.0	18.5	17.8	17.1	17.4	18.3
1993	Max.																16.9	19.5	19.5	18.1	15.9	15.0	14.9	12.1	10.9	11.8	11.8	13.1	15.6	15.6	15.2	15.9
	Min.																15.4	17.0	18.0	16.1	13.6	13.1	12.3	9.3	8.2	10.6	11.2	10.8	13.2	15.0	13.9	12.8
1994	Max.	21.8	21.6	21.6	20.7	19.8	17.3	17.4	18.8	19.0	18.4	19.5	20.6	20.8	21.0	20.8	20.1	19.9	20.6	20.0	20.0	19.0	19.5	19.2	17.0	18.4	21.8	23.5	23.5	23.0	22.6	23.1
	Min.	19.9	20.5	20.0	18.6	17.4	15.8	15.4	16.5	17.6	17.3	17.6	18.7	19.5	19.8	19.0	18.4	18.5	19.2	19.2	18.8	18.1	18.0	17.2	16.0	16.1	18.3	21.4	22.4	21.9	20.5	21.0
1995	Max.	13.1	13.9	15.9	17.5	19.9	21.3	22.6	22.8	23.1	22.0	21.4	22.7	21.8	20.9	20.0	17.6	16.2	15.4	15.9	18.0	18.5	19.0	19.3	20.9	21.9	21.6	20.8	21.0	21.0	19.4	19.0
	Min.	11.4	13.1	13.5	15.4	17.1	19.0	20.4	21.0	22.1	20.6	20.4	20.6	20.8	20.0	18.0	14.9	13.8	13.8	13.3	15.3	17.1	17.0	18.5	18.8	20.6	20.6	19.4	19.0	18.8	18.3	17.4
1996	Max.	19.5	20.6	20.5	20.5	20.6	20.6	20.2	18.6	18.4	18.1	18.9	19.3	20.0	19.8	18.3	17.4	19.2	19.8	19.7	19.0	19.6	19.5	18.8	18.0	19.5	21.1	20.9	20.1	19.6	20.2	21.8
	Min.	16.9	18.4	19.1	19.0	19.3	19.0	18.4	17.0	16.4	16.6	16.5	18.1	18.0	18.4	15.9	16.5	16.1	18.4	18.1	18.0	18.8	18.4	17.5	17.5	17.1	18.8	19.6	19.4	18.2	18.0	19.5
1997	Max.	20.9	20.9	18.5	18.1	19.5	20.1	20.7	21.8	22.0	21.6	21.0	20.5	20.7	20.0	17.1	16.5	16.8	19.1	21.0	19.6	19.2	19.0	19.4	19.8	19.5	19.0	18.3	19.0	18.5	19.5	21.1
	Min.	18.4	18.6	16.9	16.8	17.4	17.9	18.5	20.1	20.9	20.1	19.7	19.3	19.4	17.1	15.6	15.6	15.6	16.7	18.6	18.9	18.3	17.8	17.0	17.6	17.8	17.4	15.9	15.8	17.1	15.9	17.3
1998	Max.	19.9	19.0	20.5	19.9	19.5	19.5	21.4	21.0	19.1	17.7	16.8	16.9	19.5	20.6	21.4	23.9	23.9	24.3	24.6	23.3	22.1	22.2	21.1	21.5	22.1	22.5	23.3	23.5	22.9	22.0	23.2
	Min.	16.8	18.1	17.3	19.3	18.1	18.5	18.5	19.5	17.0	15.8	15.6	14.6	16.1	18.0	18.8	19.6	22.0	22.1	21.7	21.5	20.4	19.9	19.4	19.0	19.0	18.8	19.4	19.9	20.0	20.0	19.9

Appendix 7c. Maximum and minimum water temperatures (°C) measured at the fishway in Lower Terra Nova River for the month of August, 1985-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1985	Max.	19.8	19.3	17.3	17.3	17.8	19.3	20.8	22.3	22.3	23.4	23.4	22.3	22.3	20.8	19.8	18.3	17.8	17.8	17.3	17.3	17.3	17.3	17.3	16.3	16.3	17.3	17.3	17.3	16.3	15.3	14.8
	Min.	18.3	16.8	15.3	17.3	17.3	17.8	19.3	20.3	21.3	21.3	21.8	22.3	20.8	19.8	17.8	17.3	17.3	17.3	16.3	17.3	17.3	17.3	16.8	15.3	15.3	16.3	17.3	16.3	15.3	14.3	13.3
1986	Max.	14.8	15.1	17.2	17.7	19.6	19.2	19.4	19.2	19.2	19.0	18.2	18.4	19.2	19.4	20.2	21.2	20.8	20.8	20.8	20.3	20.3	20.2	18.9	17.8	17.4	16.4	16.9	16.3	15.6		
	Min.	14.1	13.7	14.5	16.2	17.4	18.6	18.2	18.8	18.4	18.7	17.8	16.9	17.6	17.9	18.0	19.2	19.2	18.8	19.0	19.5	18.7	18.5	17.8	16.9	16.1	15.0	15.0	14.8	15.1		
1987	Max.	22.8	22.0	21.3	21.1	22.2	22.1	22.0	22.3	22.0	21.7	21.9	21.0	18.7	17.8	18.5	18.5	19.4	19.2	20.5	19.7	19.9	19.9	20.0	19.2	17.9	17.1	16.8	17.7	17.5	16.9	17.8
	Min.	21.2	20.3	19.8	18.1	19.1	19.8	19.0	19.0	19.0	19.5	19.4	18.7	16.6	15.1	15.6	16.5	17.0	17.5	17.8	18.4	18.6	18.0	18.2	18.1	16.3	15.6	15.4	15.0	15.8	15.7	15.9
1988	Max.	23.4	22.9	22.7	22.3	22.3	21.6	21.0	21.4	24.0	23.5	23.9	23.7	23.2	22.6	20.1	20.3	21.2	20.0	19.4	19.2	18.7	17.8	17.1	18.1	19.0	20.0	19.8	21.5	22.3	22.3	21.7
	Min.	22.2	22.5	22.0	21.5	21.1	21.3	20.4	20.3	21.5	22.9	22.2	22.6	22.8	20.1	18.7	18.8	18.7	19.2	18.3	18.1	17.7	17.3	16.4	15.3	16.4	17.3	17.7	18.9	20.4	21.0	20.7
1989	Max.	21.4	22.1	23.0	22.5	21.1	21.7	21.3	21.7	22.0	22.5	22.6	23.0	21.6	19.2	20.7	22.2	23.3	21.8	20.7	20.7	20.0	20.4	19.5	18.4	18.2	17.3	15.9	15.0	15.9	17.3	
	Min.	19.5	20.3	20.8	20.3	20.1	20.3	20.7	20.9	20.6	20.6	21.0	21.5	19.1	18.6	18.6	20.4	21.8	19.6	18.5	18.8	18.8	19.4	17.9	17.6	16.1	15.1	14.1	13.2	14.0	15.5	
1990	Max.	17.9	17.4	17.4	18.7	18.7	20.6	21.4	22.6	21.9	22.5	21.8	21.7	21.3	20.1	19.6	19.8	20.7	17.7	15.2	15.6	15.4	15.8	15.5	15.8	16.0	15.6	15.6	16.4	18.0	18.6	18.7
	Min.	16.7	16.9	16.5	17.2	18.4	18.4	20.0	20.5	20.9	20.9	21.0	21.0	20.0	18.9	18.3	17.7	16.9	14.4	13.1	13.5	13.5	14.0	13.9	12.9	14.2	14.0	14.6	15.0	16.0	16.8	16.1
1991	Max.	19.6	17.3	15.1	16.0	15.1	14.4	15.6	16.5	18.0	18.4	19.1	20.3	21.7	22.3	21.0	21.0	21.6	20.3	19.1	17.6	17.1	18.4	19.0	18.5	18.0	18.5	18.1	18.3	17.8	17.2	16.6
	Min.	17.5	15.2	14.1	13.4	13.8	12.6	13.7	13.5	14.9	16.5	17.0	17.6	18.6	20.1	20.0	18.9	18.9	19.3	17.0	16.0	16.3	16.1	16.9	15.4	15.2	15.6	16.2	14.9	15.9	16.1	14.6
1992	Max.	19.1	18.0	16.9	17.1	17.5	19.4	19.2	19.4	20.5	20.8	20.6	20.0	20.0	18.5	17.5	18.3	18.7	19.9	20.2	20.4	20.5	19.9	17.6	16.3	15.8	15.6	15.0				
	Min.	17.9	16.3	15.1	15.6	16.9	17.3	17.4	17.3	18.1	19.4	19.0	19.0	18.4	16.5	15.9	16.1	17.3	17.9	19.5	18.9	19.4	17.8	16.0	15.3	15.3	14.1	14.1				
1993	Max.	17.5	17.5	16.9	15.4	13.4	14.9	15.3	15.1	14.0	15.7	17.5	17.2	16.8	16.4	15.3	15.1	14.2	14.6	16.0	16.0	16.6	16.6	15.9	14.7	17.1	17.8	17.6	17.8	18.9	19.8	21.3
	Min.	14.9	15.9	15.4	13.6	12.4	12.9	14.6	13.5	12.6	14.1	15.3	16.1	16.1	14.9	14.2	14.1	13.8	13.2	14.1	15.0	14.6	15.6	14.8	13.0	13.9	15.9	16.3	16.0	17.5	18.2	19.5
1994	Max.	23.5	23.5	21.8	21.5	21.9	21.7	19.9	20.1	22.1	22.5	22.2	20.7	19.5	21.1	21.0	19.5	18.8	19.4	19.9	19.9	19.5	19.4	18.9	18.8	19.2	19.3	20.4	20.6	21.6	20.5	18.3
	Min.	21.8	21.3	19.5	19.2	20.7	20.0	19.1	19.4	20.0	21.1	20.3	18.4	17.7	19.3	19.5	17.4	17.4	17.8	18.0	18.5	18.9	18.4	17.0	17.2	17.6	18.2	18.8	20.0	20.3	18.4	17.0
1995	Max.	18.9	17.7	18.9	19.5	19.8	19.4	19.8	21.4	21.7	22.3	22.3	21.5	21.0	18.0	18.0	19.4	19.4	17.5	17.5	19.0	21.0	21.2	18.3	15.6	16.6	16.8	16.0	16.5	16.7	16.6	14.4
	Min.	17.3	15.6	16.3	18.1	18.6	18.1	17.8	19.4	20.0	20.8	21.0	20.7	17.9	16.3	16.3	17.0	17.6	15.7	15.9	16.3	19.0	18.5	15.7	14.5	14.4	16.1	14.9	14.4	15.6	14.6	13.6
1996	Max.	22.1	21.7	20.5	22.5	23.3	24.3	24.7	24.6	24.2	23.4	23.6	23.0	22.5	21.8	20.3	20.2	20.6	21.7	21.6	20.4	20.3	21.0	21.5	20.5	21.2	20.6	20.2	20.7	19.9	20.0	19.0
	Min.	20.4	20.3	19.5	20.1	21.9	22.0	22.6	23.0	21.8	21.3	22.0	21.5	21.0	20.1	19.1	18.6	19.5	20.5	19.8	18.9	19.2	19.1	19.4	19.8	19.2	19.3	19.0	18.2	18.5	18.4	17.6
1997	Max.	21.5	21.0	22.4	21.3	20.1	20.1	20.3	20.1	21.4	21.8	23.0	22.0	19.5	18.6	19.6	18.9	18.2	17.5	16.5	18.0	18.9	18.3	18.3	18.6	18.4	18.7	19.8	19.6	19.2	16.9	16.4
	Min.	18.6	18.9	19.0	19.5	18.8	18.5	17.9	17.4	17.9	19.6	19.9	19.9	18.0	17.1	16.6	17.0	16.7	16.4	14.8	14.1	14.8	15.6	15.9	16.5	17.1	17.1	17.1	17.5	17.0	16.1	14.6
1998	Max.	23.0	22.5	23.6	23.3	23.0	23.3	23.1	22.9	23.0	24.5	24.1	21.3	21.0	21.1	21.5	21.9	21.9	20.9	21.0	20.9	20.3	20.3	20.2	20.1	19.9	17.5	17.4	17.4	16.8	16.3	17.5
	Min.	19.8	19.3	19.5	19.9	20.9	20.0	20.9	20.5	21.1	21.1	21.4	19.4	18.8	17.9	18.1	19.1	19.4	18.8	19.6	18.9	18.2	18.5	18.0	18.4	17.6	16.9	16.2	16.1	15.6	15.3	15.3

Appendix 7d. Maximum and minimum water temperatures (°C) measured at the fishway in Lower Terra Nova River for the month of September, 1985-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1985	Max.	13.3	13.3	13.3	13.3	14.3	14.3	14.3	14.3	13.3	13.8	13.8	13.3	13.3	13.3	13.3	13.3	13.3	13.8	14.8	15.3	16.3	16.3	14.3	13.3	13.3					
	Min.	13.3	12.8	13.3	13.3	13.3	14.3	14.3	13.3	13.3	13.3	13.3	12.8	12.8	13.3	13.3	12.3	12.3	12.3	13.8	14.8	15.3	14.3	12.8	12.3	12.3					
1986	Max.																														
	Min.																														
1987	Max.	17.7	17.5	17.2	16.2	14.5	14.3	14.2	13.6	13.1																					
	Min.	15.2	16.3	15.3	14.5	13.9	13.5	13.8	13.2	12.5																					
1988	Max.	21.3																													
	Min.	19.4																													
1989	Max.																														
	Min.																														
1990	Max.	17.9	16.5	15.1	14.3	15.2	15.7	15.0	13.3	12.6	13.1	13.0	12.3	11.3																	
	Min.	15.4	14.6	13.2	12.1	12.4	12.7	13.1	11.6	10.2	11.4	11.1	10.8	9.7																	
1991	Max.	14.4	12.8	14.1	16.0	16.1	15.6	15.3	14.8	14.1	12.3	11.9	12.1	12.1	11.9	12.7	13.6	15.6	15.6												
	Min.	12.6	11.3	11.3	12.8	14.3	15.1	14.9	14.0	12.3	11.6	11.4	11.5	11.5	10.8	10.9	12.7	13.6	14.1												
1992	Max.																														
	Min.																														
1993	Max.	22.0	21.9																												
	Min.	20.3	20.8																												
1994	Max.																														
	Min.																														
1995	Max.																														
	Min.																														
1996	Max.	18.9	18.6	17.9	18.7	17.9																									
	Min.	17.0	16.4	14.9	15.0	16.4																									
1997	Max.	16.4	17.5	17.2	17.5	17.5	17.4	18.1	18.3	16.2	14.2	15.2	16.3	16.3	16.3	16.6	16.4	15.7	15.1	15.6	16.5	16.5	15.4	13.6	12.6	11.8					
	Min.	13.6	14.9	15.6	16.2	15.9	16.5	16.8	16.3	14.3	13.3	13.4	14.6	15.8	15.9	15.9	15.6	14.6	13.9	14.9	15.6	15.1	13.7	12.6	11.4	10.9					
1998	Max.	18.0	17.9	16.0	15.9	14.6	14.3	14.3	16.8	17.5	18.0	18.0	17.8	17.3	16.7	16.3	15.3	13.9													
	Min.	15.4	15.6	14.9	14.6	13.4	12.4	13.4	13.6	16.6	17.1	17.5	17.1	15.8	15.8	15.4	13.3	12.3													

Appendix 8a. Maximum and minimum water temperatures (°C) measured at the counting fence in Northeast Brook, Trepassey for the month of April, 1984-98.

Year		Date																											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1984	Max.																														
	Min.																														
1985	Max.																														
	Min.																														
1986	Max.																			5.2	4.0	6.5	8.6	10.5	10.3	11.2	12.2	11.6	12.0	13.2	13.1
	Min.																			2.9	3.2	3.7	6.0	7.6	9.2	9.2	10.5	10.3	8.8	10.3	7.1
1987	Max.																														
	Min.																														
1988	Max.																				5.1	4.9	5.0	5.1	6.3	5.0	5.4	7.4	7.4	9.2	6.5
	Min.																				4.8	4.4	4.4	4.3	4.2	4.6	4.0	3.8	4.9	5.0	6.1
1989	Max.					2.2	2.4	2.5	2.8	3.3	3.5	3.3	4.6	4.3	3.6	5.1	3.4	5.6	5.4	4.4	5.7	4.6	4.4	5.9	7.0	6.8	7.8	6.9	7.5	8.0	9.4
	Min.					2.2	1.8	1.7	1.8	1.7	2.4	2.5	2.0	2.7	2.4	1.7	2.7	2.6	2.9	3.8	2.9	3.8	3.8	3.4	4.2	4.7	4.7	5.2	5.0	5.0	5.4
1990	Max.											3.6	4.9	6.2	6.1	5.2	4.6	4.4	5.7	6.9	7.6	5.7	5.0	4.9	6.3	6.7	7.1	6.6	7.8	8.1	8.6
	Min.											3.1	2.5	2.5	3.2	3.7	3.9	3.5	3.3	3.0	3.7	4.9	3.7	3.4	3.8	4.9	5.1	4.9	3.7	4.1	5.2
1991	Max.								3.3	5.3	3.5	4.0	3.4	2.8	5.2	5.0	4.2	5.9	6.6	7.7	8.2	6.8	6.5	7.7	7.1	7.8	7.6	9.1	9.4	7.4	7.8
	Min.								3.2	2.5	2.9	2.8	2.0	1.3	1.1	2.0	2.5	2.3	3.0	4.3	5.4	6.0	5.8	5.6	5.9	5.5	6.0	5.4	5.7	5.8	5.7
1992	Max.		2.2	2.3	3.0	3.7	2.8	2.2	2.1	2.5	3.7	2.8	3.2	3.3	2.6	2.5	4.6	5.6	5.5	7.1	7.0	6.2	5.1	4.5	4.8	4.9	6.8	3.7	3.6	4.3	6.3
	Min.		2.1	1.2	1.9	2.1	2.3	1.7	1.2	1.0	1.2	1.7	0.8	1.9	1.3	0.8	0.8	1.4	2.1	2.6	3.7	4.3	4.6	3.4	2.8	2.5	2.0	2.2	2.9	2.6	2.4
1993	Max.																				6.6	6.4	6.2	6.7	6.7	7.6	6.8	6.1	5.5	4.9	5.8
	Min.																				6.1	5.4	5.8	5.5	5.6	4.9	5.7	5.6	4.4	4.1	4.6
1994	Max.													3.7	4.4	6.1	5.8	5.0	4.7	4.5	5.3	6.7	7.4	7.4	6.9	7.5	8.3	6.0	6.8	5.7	8.4
	Min.													3.4	2.3	3.3	4.1	4.6	3.3	3.2	3.9	4.2	5.1	4.9	4.6	4.5	4.8	5.3	4.3	4.6	4.1
1995	Max.																														
	Min.																														
1996	Max.																									7.5	10.6	11.9	11.6	10.4	11.8
	Min.																									7.5	6.0	6.9	9.0	9.0	8.9
1998	Max.																														
	Min.																														

Appendix 8b. Maximum and minimum water temperatures (°C) measured at the counting fence in Northeast Brook, Trepassey for the month of May, 1984-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1984	Max.																															
	Min.																															
1985	Max.																															
	Min.																															
1986	Max.	10.3	10.7	10.1	10.9	9.1	7.4	7.0	6.6	7.8	7.0	8.8	7.3	8.3	10.9	13.2	14.1	14.0	14.3	12.8	11.5	9.3	9.3	11.1	13.2	11.1	11.5	12.9	13.1	12.7	13.3	12.1
	Min.	8.5	9.1	9.4	7.9	7.9	6.3	6.0	5.3	5.5	4.9	5.0	5.3	5.1	5.1	6.3	8.9	9.5	9.5	11.0	10.3	8.5	8.7	8.5	8.5	9.9	8.1	8.7	10.9	11.4	10.2	10.6
1987	Max.																											13.4	12.7	12.6	12.6	14.0
	Min.																											6.8	7.2	8.2	7.1	6.4
1988	Max.	7.2	6.6	6.1	5.7	6.7	8.2	7.2	7.1	7.6	8.1	9.2	11.9	11.8	11.7	12.3	13.2	14.3	14.9	13.5	16.1	16.5	17.1	14.8	15.6	14.0	13.1	15.1	16.4	16.0	14.0	16.0
	Min.	5.6	5.7	5.5	5.2	5.3	5.6	6.7	6.1	6.0	7.0	7.0	8.2	10.4	10.4	9.9	9.1	9.9	10.4	11.6	11.0	12.8	13.2	13.3	13.2	13.2	12.0	12.0	11.0	11.8	11.5	10.3
1989	Max.	9.3	8.3	9.4	8.8	10.8	11.6	10.2	10.2	10.0	13.5	15.0	12.2	12.3	11.3	10.6	11.4	13.1	13.6	12.4	13.3	11.8	14.5	17.4	17.2	15.0	17.1	14.8	13.0	16.5	16.5	18.1
	Min.	6.5	7.0	6.3	6.7	6.4	6.9	8.0	8.6	8.5	8.6	9.2	9.5	7.1	8.6	9.0	8.6	8.7	6.9	8.5	8.4	8.9	9.5	11.2	11.8	13.0	12.1	13.1	12.0	11.1	12.7	12.9
1990	Max.	7.2	6.8	7.4	9.2	6.2	4.9	5.8	8.1	10.0	7.7	7.5	9.7	9.9	9.6	10.1	10.2	11.1	8.2	7.5	8.2	8.9	8.0	7.3	9.5	11.3	13.8	14.8	15.8	11.6	10.7	11.5
	Min.	5.8	6.2	5.5	5.3	4.5	4.0	3.6	4.1	5.7	6.0	6.3	5.8	6.4	7.5	7.7	6.9	6.1	6.6	6.4	6.4	6.8	6.9	6.2	5.4	6.0	7.4	8.3	8.4	10.0	9.2	8.2
1991	Max.	9.9	8.9	9.6	10.6	10.1	9.1	7.7	9.4	11.0	12.1	11.4	9.1	8.6	11.1	9.8	10.6	8.4	11.2	12.1	12.4	9.6	8.4	10.8	7.9	10.1	11.4	12.4	9.4	7.6	7.7	9.4
	Min.	5.3	6.4	6.8	7.6	8.5	7.8	6.9	6.6	7.3	7.9	8.7	8.4	7.4	6.2	7.5	7.4	6.1	5.8	6.4	7.4	7.4	6.3	6.4	6.9	6.3	7.4	7.8	7.9	6.5	5.8	5.7
1992	Max.	4.3	6.0	5.3	4.6	6.6	6.9	8.3	8.4	8.7	7.4	7.8	8.3	10.1	9.7	11.4	12.1	14.1	12.0	10.0	11.1	10.7	14.2	12.1	14.8	11.9	11.8	11.0	9.8	12.6	14.9	16.8
	Min.	3.9	3.6	4.6	3.8	4.3	5.1	5.7	6.2	6.1	6.0	5.3	5.9	6.7	8.6	8.8	9.0	9.6	9.7	8.8	8.1	8.4	8.4	8.6	9.1	9.4	8.2	8.4	8.9	8.2	9.5	10.4
1993	Max.	5.9	5.5	5.2	5.5	7.1	6.9	9.0	7.3	5.5	5.6	7.8	10.0	8.4	8.1	7.5	10.8	10.3	11.3	10.3	9.3	9.4	9.1	9.4	10.3	11.9	10.8	11.9	11.8	10.6	10.7	11.6
	Min.	5.1	3.8	4.0	4.3	4.9	5.8	5.0	5.7	4.2	3.0	3.0	3.9	5.8	6.3	6.9	7.1	8.1	7.3	8.3	7.9	8.8	8.6	8.7	8.4	9.1	9.4	9.2	10.1	9.3	8.4	8.1
1994	Max.	6.6	8.6	9.4	10.1	7.3	6.6	8.1	6.8	8.3	7.6	9.9	8.6	9.4	8.9	7.9	10.1	9.1	7.8	8.4	9.9	11.9	8.6	11.6	12.6	9.3	8.4	8.6	9.1	12.3	12.1	11.5
	Min.	5.2	5.6	5.2	5.7	6.7	6.1	5.3	6.1	5.8	7.2	6.2	7.0	6.7	7.8	7.3	7.2	8.1	6.9	6.7	6.8	7.4	7.6	7.6	6.8	7.9	7.9	8.1	7.6	8.0	9.9	9.5
1995	Max.																															
	Min.																															
1996	Max.	14.3	15.6	12.0	12.9	11.1	9.1	10.3	10.7	11.0	12.4	8.9	7.8	7.2	8.0	7.4	6.8	9.2	10.1	12.5	12.6	9.8	11.8	11.6	12.0	13.6	11.3	14.1	11.8	14.9	11.2	11.1
	Min.	9.6	11.1	10.6	9.4	8.4	7.4	7.3	6.6	6.8	6.8	7.8	6.6	6.4	6.1	6.6	6.1	5.9	7.8	8.4	8.8	9.0	8.9	9.8	9.0	9.2	8.3	8.1	9.2	8.8	9.6	9.6
1998	Max.																															
	Min.																															

Appendix 8c. Maximum and minimum water temperatures (°C) measured at the counting fence in Northeast Brook, Trepassey for the month of June, 1984-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1984	Max.																													13.2	14.1
	Min.																													10.6	12.2
1985	Max.																												16.6	15.1	14.1
	Min.																												15.6	13.6	11.1
1986	Max.	13.4	12.0	11.6	11.8	9.9	11.8	13.1	14.4	11.3	11.8	10.8	11.6	13.6	11.7	12.6	16.9	14.5	12.0	13.5	14.4	13.1	17.3	17.2	15.6	14.1	13.7	15.0	17.5	14.4	11.5
	Min.	10.6	11.3	10.8	9.2	9.5	8.9	9.6	10.1	10.4	10.1	10.2	8.7	8.9	10.5	9.7	11.0	12.3	9.9	10.3	11.7	12.2	12.1	14.1	13.9	13.0	12.9	11.2	12.1	11.0	11.0
1987	Max.	12.6	11.1	13.7	15.4	14.7	16.1	17.7	15.3	11.3	11.0	11.0	14.3	14.7	12.8	12.7	14.6	16.4	14.8	16.7	15.3	17.7	17.0	17.3	17.2	14.2	13.7	16.2	16.2	11.2	17.6
	Min.	8.8	8.8	7.1	8.7	7.8	7.8	10.2	10.8	7.7	8.9	9.7	8.9	10.0	9.4	10.2	9.5	9.8	11.4	8.1	10.7	9.8	10.7	9.1	10.6	10.2	9.3	9.3	9.3	10.0	10.6
1988	Max.	12.2	11.5	11.4	13.2	10.8	10.9	10.5	10.6	11.6	10.7	11.7	11.2	12.5	13.5	13.0	14.4	16.8	14.0	13.9	13.8	13.3	15.0	13.3	15.1	15.6	13.8	13.2	13.4	13.4	12.9
	Min.	10.2	10.2	9.8	9.4	10.1	9.3	9.9	9.3	9.1	10.4	9.8	10.6	10.6	11.3	11.8	11.7	12.9	12.6	11.4	12.7	12.5	12.3	12.9	12.5	12.8	12.8	12.3	12.7	12.8	12.2
1989	Max.	15.7	12.1	13.8	13.1	16.0	14.5	17.3	15.7	17.1	15.2	12.5	14.4	13.0	16.7	17.3	19.0	17.7	15.7	14.2	12.9	15.0	14.3	15.6	17.3	15.5	16.3	18.5	17.6	19.3	19.8
	Min.	12.2	10.9	10.5	11.7	11.0	13.1	12.9	13.2	11.5	12.1	11.5	11.2	10.3	9.9	11.0	11.6	13.2	13.8	11.7	11.3	12.0	13.0	12.5	13.7	14.7	14.0	14.9	15.4	14.6	14.5
1990	Max.	13.2	14.5	16.8	12.8	11.4	12.5	11.5	11.4	12.2	12.8	10.6	15.0	13.2	15.4	15.1	14.0	12.9	13.1	13.7	13.1	12.0	13.1	13.9	12.2	16.0	15.9	15.1	18.2	15.1	16.3
	Min.	8.2	9.6	11.1	11.1	9.9	9.6	9.1	8.5	10.1	9.8	9.2	9.0	10.5	11.6	12.5	12.0	11.5	11.9	12.6	12.1	11.4	10.8	11.1	11.4	11.1	13.1	13.4	13.2	13.6	13.2
1991	Max.	9.6	11.1	13.8	12.6	9.4	12.1	13.3	14.9	13.3	15.6	13.0	12.3	12.7	11.9	14.9	16.7	18.5	15.9	14.8	18.8	16.5	18.2	20.5	17.6	18.0	18.3	16.4	14.4	14.6	17.8
	Min.	7.2	7.4	8.5	9.3	7.4	7.8	8.9	9.8	9.7	9.4	11.0	11.0	10.9	10.4	9.3	9.4	10.4	11.5	11.6	12.4	12.9	11.0	12.4	13.4	9.6	11.1	13.3	12.6	11.8	10.6
1992	Max.	14.8	18.0	16.3	15.9	17.0	16.4	16.2	14.5	13.8	16.4	16.8	17.5	17.6	19.3	19.2	17.4	14.0	12.8	14.4	13.3	15.5	16.2	15.9	18.0	20.6	17.9	18.1	17.9	16.7	18.5
	Min.	13.7	13.1	14.0	12.6	10.4	10.8	11.3	12.5	12.7	12.1	12.7	11.5	12.6	13.4	14.5	13.0	12.3	10.7	11.0	11.6	11.8	13.2	12.7	13.5	15.4	14.6	14.3	14.6	14.8	12.0
1993	Max.	10.1	13.0	13.9	12.3	15.7	14.4	10.8	10.6	11.7	13.9	11.4	12.1	13.6	15.7	12.6	17.5	17.4	15.6	17.4	17.1	14.9	13.8	12.4	13.2	13.3	13.6	14.4	13.2	12.6	12.6
	Min.	8.6	8.7	9.8	10.4	9.3	9.8	9.9	9.3	9.3	9.7	9.8	8.7	8.9	9.4	11.3	10.8	13.2	13.9	13.5	12.5	11.9	12.6	10.5	9.7	10.6	10.8	11.1	12.4	12.1	11.3
1994	Max.	10.9	10.4	8.9	12.2	12.3	11.6	10.9	10.6	10.2	11.9	14.4	16.5	17.1	14.8	18.6	17.5	17.8	16.2	18.5	19.1	16.3	18.0	18.7	19.1	16.5	17.6	17.0	15.1	17.4	20.2
	Min.	9.9	8.9	8.1	7.8	8.9	9.4	9.8	9.5	9.1	8.6	8.9	9.5	12.7	13.1	12.8	14.1	13.8	14.3	12.5	13.3	13.6	13.4	13.9	13.6	13.6	13.1	13.4	13.2	14.3	14.6
1995	Max.					17.1	14.6	15.9	15.6	18.1	18.0	16.0	16.1	14.4	14.1	17.7	19.1	17.9	15.4	19.5	20.1	20.8	21.2	21.5	18.5	18.5	19.9	17.4	19.5	19.0	17.3
	Min.					14.6	11.2	11.3	10.6	11.6	13.2	12.7	12.4	13.3	12.9	12.9	13.6	13.8	13.5	12.6	12.8	13.9	14.2	14.9	16.6	14.8	13.8	12.3	13.4	13.9	13.9
1996	Max.	11.2	13.3	14.4	13.6	12.9	12.4	15.9	13.6	15.7	16.9	14.5	17.1	15.9	15.9	14.6	13.4	16.1	16.9	18.0	17.0	13.9	15.3	17.9	18.4	19.6	16.0	12.7	14.4	16.3	17.0
	Min.	9.1	9.1	9.5	10.6	11.6	11.6	10.9	12.1	11.2	11.1	12.0	10.9	12.1	12.6	13.6	12.6	11.7	11.4	11.6	12.6	10.8	10.5	10.5	11.7	11.7	12.6	11.1	10.8	12.3	13.7
1998	Max.													19.5	20.9	21.6	17.5	19.5	17.5	17.5	16.6	19.3	19.9	20.5	21.0	20.0	18.5	17.2	16.0	18.8	16.4
	Min.													14.6	13.1	14.1	15.2	14.4	15.4	15.4	15.2	13.1	13.4	13.9	15.4	16.5	16.6	13.4	11.6	12.9	14.6

Appendix 8d. Maximum and minimum water temperatures (°C) measured at the counting fence in Northeast Brook, Trepassey for the month of July, 1984-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1984	Max.	15.5	18.4	18.6	16.4	16.3	16.4	19.9	19.3	19.2	18.6	17.7	17.5	17.1	21.4	19.6	20.0	18.7	19.2	18.6	19.2	21.1	19.6	20.4	18.3	19.7	21.1	21.3	19.7	18.9	17.3	19.6
	Min.	13.2	14.1	13.9	14.8	13.4	14.3	14.1	17.9	17.5	17.2	16.9	16.1	16.2	16.0	17.9	15.1	16.4	16.3	16.7	16.7	16.8	18.0	17.0	16.4	16.3	15.7	16.4	18.0	16.7	15.4	15.9
1985	Max.	12.1	14.6	16.6	16.6	17.6	20.7	18.6	16.6	15.1	14.6	15.6	15.1	16.6	18.6	17.6	16.1	16.6	16.6	15.6	15.1	16.6	16.1									
	Min.	10.6	10.6	12.6	14.1	14.6	14.6	16.6	15.6	14.1	13.6	13.6	14.6	14.1	14.6	16.1	15.1	15.1	15.1	15.1	14.1	13.6	14.6									
1986	Max.	12.5	13.1	11.8	13.8	12.8	12.4	13.3	13.5	14.3	15.0	16.4	15.3	16.7	19.9	17.2	15.4	16.4	19.3	21.1	19.0	16.4	16.4	18.5	19.5	17.9	19.3	20.7	20.6	16.6	13.6	12.3
	Min.	10.7	10.9	11.5	11.3	12.1	11.7	10.5	11.0	12.0	12.0	12.8	12.5	13.1	13.9	13.9	13.3	13.1	13.4	16.0	16.6	15.2	14.2	14.0	15.1	14.8	15.3	16.1	16.0	14.7	12.7	12.1
1987	Max.	17.2	20.0	18.9	16.5	14.8	12.3	16.2	21.0	21.4	20.7	19.7	20.2	20.1	21.4	19.7	17.7	21.3	20.7	18.4	19.9	19.3	19.2	19.6	21.0	19.8	20.6	19.8	19.4	20.8	21.6	22.8
	Min.	12.3	11.6	10.2	9.8	11.4	9.9	9.1	13.1	14.1	15.6	15.4	13.8	16.3	16.4	16.3	15.3	15.2	13.9	14.0	12.6	13.7	12.0	10.7	15.0	15.2	14.9	15.7	14.5	15.2	13.9	15.8
1988	Max.	12.9	13.3	13.5	15.6	15.5	18.2	16.1	15.1	16.1	19.2	17.6	14.8	14.6	15.0	15.5	18.5	15.9	17.8	19.6	17.7	18.5	16.8	17.8	17.1	15.9	13.4	13.7	15.7	16.2	17.3	16.5
	Min.	12.1	12.7	12.9	12.6	14.2	14.1	14.1	13.3	14.9	15.0	14.9	14.6	14.3	13.7	13.7	14.3	14.9	14.3	15.6	17.2	16.8	15.6	16.0	15.9	13.5	12.8	12.8	13.2	14.2	15.1	15.5
1989	Max.	20.2	17.8	21.3	21.2	19.7	18.1	16.2	14.5	14.8	14.6	14.7	16.5	17.1	15.7	18.0	18.0	17.1	16.7	18.3	19.9	17.6	19.6	21.6	18.8	19.3	19.1	17.6	17.4	17.3	19.0	20.6
	Min.	15.0	14.9	14.1	15.2	16.5	16.2	13.7	13.8	13.7	14.1	14.3	14.0	14.4	14.6	14.5	15.4	15.3	14.7	15.2	15.7	15.8	14.8	15.2	16.0	15.0	15.9	16.2	16.2	15.7	15.9	16.0
1990	Max.	15.0	14.0	16.3	13.6	17.9	18.6	15.1	19.1	14.7	15.9	17.3	17.9	19.4	20.9	21.4	17.2	19.6	17.6	18.1	16.5	21.8	22.6	19.0	23.2	22.7	23.2	23.1	22.9	23.2	23.0	22.2
	Min.	13.7	12.8	12.6	12.7	11.5	11.9	12.8	12.0	13.1	12.4	13.0	13.3	13.5	13.4	14.5	14.6	14.5	15.6	14.9	15.0	14.5	15.8	16.6	16.8	18.7	17.8	15.8	17.2	16.2	14.8	16.1
1991	Max.	15.6	18.6	19.1	19.5	20.9	21.4	19.0	16.8	20.2	19.9	19.6	20.8	17.5	16.5	21.0	21.1	18.1	18.0	19.0	21.7	19.2	20.7	17.4	20.6	22.1	19.1	18.3	22.6	22.0	23.3	20.8
	Min.	11.9	11.4	11.6	13.2	13.6	14.3	14.9	14.1	13.9	14.4	14.9	14.8	14.8	14.4	15.1	15.4	15.6	15.2	14.6	15.8	16.5	15.2	15.0	15.0	15.5	16.5	16.0	15.8	16.3	14.9	16.1
1992	Max.	16.7	15.2	13.7	13.1	16.8	13.5	12.5	13.0	14.4	13.8	12.2	14.7	15.2	16.0	14.8	17.1	17.8	19.3	16.5	17.5	17.2	16.4	17.7	17.1	20.2	20.1	20.5	18.9	17.0	17.6	19.5
	Min.	13.3	13.7	12.4	11.2	10.2	12.5	11.2	10.8	11.9	11.9	11.5	11.8	12.7	12.8	13.1	13.1	13.2	13.1	14.6	13.6	15.0	14.7	14.3	14.8	14.7	15.7	15.5	16.1	14.9	15.5	15.9
1993	Max.	15.9	17.1	15.6	12.4	12.4	15.1	15.6	16.6	15.4	18.0	16.0	19.1	17.0	16.2	14.9	14.1	16.3	15.1	16.1	16.5	15.5	14.3	13.8	13.1	14.9	16.3	17.1	16.8	16.5	16.1	15.9
	Min.	11.6	12.7	12.8	10.8	11.4	11.5	12.8	14.0	14.4	13.8	14.2	13.6	14.9	14.0	13.6	12.9	13.1	13.8	13.2	13.3	13.4	12.5	12.9	12.5	11.9	12.4	13.2	13.6	14.4	14.9	14.2
1994	Max.	18.5	17.3	19.9	19.4	17.0	17.1	18.9	17.5	15.6	15.4	20.0	19.6	17.6	22.4	19.9	17.0	19.6	18.6	19.6	20.1	18.7	19.5	20.1	18.3	16.8	16.5	18.4	21.4	21.8	23.1	21.8
	Min.	15.4	15.9	15.1	14.0	14.4	14.5	13.7	13.4	13.7	13.9	14.0	14.1	14.8	15.1	15.9	15.8	14.4	15.0	15.6	15.9	16.3	15.8	16.3	16.1	14.4	15.3	16.0	17.4	18.7	17.4	19.1
1995	Max.	14.7	15.3	18.9	20.4	21.1	21.4	22.6	23.9	21.4	20.0	22.9	24.0	22.5	22.5	20.5	19.4	20.1	17.1	15.7	19.7	18.8	20.9	17.9	21.3	23.2	21.1	21.5	23.0	18.6	20.8	20.3
	Min.	14.1	13.8	14.1	14.8	17.3	16.9	17.2	19.0	19.5	18.6	18.5	19.8	18.6	18.3	18.2	15.9	15.1	14.3	13.9	14.3	16.2	15.7	15.7	16.3	16.9	18.1	17.8	16.6	16.1	16.6	17.8
1996	Max.	15.2	14.6	15.9	15.4	13.4	14.2	13.8	16.6	18.6	17.4	17.6	19.8	21.5	18.3	17.1	16.2	15.1	16.4	18.5	16.9	15.9	16.3	17.1	18.0	17.6	19.1	18.0	20.1	17.8	18.6	19.7
	Min.	14.1	13.7	13.6	13.4	13.0	12.9	13.1	12.2	14.1	15.0	14.1	14.4	15.6	16.5	14.3	14.3	13.9	14.1	14.4	15.5	15.1	14.5	14.6	15.1	15.4	15.4	16.5	16.1	16.1	16.2	16.1
1998	Max.	14.8	14.4	17.5	15.9	13.9	14.9	18.5	17.6	14.1	14.1	14.4	15.6	18.7	19.1	21.5	23.0	20.8	18.5	20.5	18.9	19.0	19.3	18.0	17.8	19.8	21.2	21.0	22.0	19.9	19.5	18.8
	Min.	12.1	12.4	12.5	13.9	13.1	13.1	13.6	13.1	12.4	13.1	13.1	13.3	13.8	15.1	15.7	18.0	18.8	15.4	16.1	16.6	16.2	16.5	15.1	16.4	15.6	17.1	17.6	17.5	18.4	17.9	17.4

Appendix 8e. Maximum and minimum water temperatures (°C) measured at the counting fence in Northeast Brook, Trepassey for the month of August, 1984-98.

Year		Date																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1984	Max.	18.9	18.0	20.0	21.4	19.8	21.1	21.0	20.7	22.2	21.1	19.1	18.9	20.0	20.1	21.1	21.5	20.4	20.5	19.6	17.7	17.1	17.1	18.3	18.1	17.5	16.6	17.4	18.1	19.4	19.3	18.3
	Min.	17.6	17.5	16.4	17.4	18.6	17.8	18.3	19.1	19.5	15.6	17.5	18.0	17.8	18.7	17.1	16.7	18.2	19.1	17.9	16.9	16.5	15.5	15.6	16.9	16.4	15.7	15.2	16.2	16.2	17.8	17.6
1985	Max.																															
	Min.																															
1986	Max.	12.5	13.5	17.6	16.7	17.4	18.4	19.3	17.7	19.1	17.6	17.9	18.5	20.2	20.4	20.2	20.2	21.4	21.6	21.1	18.7	16.5	17.9	16.4	16.3	14.7	16.4	18.2	15.1	15.8	15.8	17.0
	Min.	12.0	12.6	13.0	15.4	15.2	15.7	15.9	16.6	16.0	16.8	15.7	16.8	16.9	15.9	16.6	17.3	17.6	17.3	18.5	15.6	14.6	13.8	14.6	14.0	13.5	14.1	13.9	14.5	15.1	14.3	13.8
1987	Max.	20.4	17.4	16.5	17.0	19.8	19.2	20.9	20.5	18.2	18.8	19.8	17.9	13.4	18.1	16.8	16.9	14.2	14.0	18.2	20.0	18.8	20.3	18.2	18.9	17.4	17.2	16.8	16.1	17.4	15.7	16.4
	Min.	15.8	14.4	14.3	13.9	14.9	15.8	15.0	12.5	12.2	12.0	12.5	12.7	11.3	10.2	14.3	13.2	12.8	12.6	13.5	16.2	15.5	14.3	13.6	15.6	11.9	11.8	13.3	10.4	10.6	13.3	11.7
1988	Max.	17.6	16.9	19.0	18.9	19.8	19.2	16.5	17.2	19.0	18.9	21.0	19.8	22.6	19.8	17.9	16.7	15.8	14.0	15.4	16.2	16.3	16.7	15.8	16.8	18.5	18.8	17.0	19.1	18.5	18.8	18.1
	Min.	15.0	15.9	15.2	14.5	16.6	16.8	15.1	15.6	16.5	17.0	17.3	16.0	17.7	17.8	15.4	15.2	14.4	13.5	13.4	14.2	14.8	14.9	14.3	13.5	13.9	14.6	14.7	16.0	17.1	16.9	17.3
1989	Max.	21.4	22.1	22.5	19.3	20.8	20.2	19.7	19.2	22.3	22.2	23.1	20.5	19.3	22.3	22.1	22.7	20.8	21.6	23.0	20.4	17.5	18.9	17.9	17.1	16.4	16.9	16.7	18.1	18.7	16.1	16.6
	Min.	16.4	16.4	16.5	16.4	17.2	17.6	18.3	17.7	16.3	17.3	17.3	18.5	17.1	17.8	17.9	17.4	17.8	16.4	17.4	17.1	16.7	16.5	16.7	16.1	15.0	14.4	13.9	13.3	14.4	15.2	14.6
1990	Max.	18.2	15.0	15.3	16.1	17.8	17.1	19.1	18.7	19.0	19.7	18.5	19.8	20.3	19.5	18.9	20.3	21.1	19.1	19.3	18.7	19.0	20.0	19.2	19.5	21.2	18.3	16.6	16.8	18.3	20.0	19.9
	Min.	14.4	12.4	11.7	12.6	12.8	15.4	15.6	17.3	16.7	15.5	16.7	16.6	18.0	17.0	16.3	16.8	17.6	17.5	15.4	14.6	14.6	14.7	14.7	13.6	15.6	15.6	15.5	15.6	16.1	16.7	15.7
1991	Max.	18.6	17.9	16.6	15.9	15.3	18.1	18.3	21.0	21.0	19.0	17.5	19.4	18.5	21.3	19.6	22.0	20.9	21.8	20.8	20.5	18.5	18.4	17.4	19.0	19.5	17.5	20.0	20.1	18.5	17.6	16.6
	Min.	15.4	15.5	13.9	13.9	13.4	12.7	13.2	13.9	14.1	14.8	15.0	15.6	15.9	16.1	17.3	15.9	17.1	17.4	16.5	16.0	15.8	16.3	15.8	13.3	13.2	14.9	13.6	14.6	15.8	15.6	15.4
1992	Max.	19.0	17.1	16.7	17.3	16.9	16.6	18.0	19.9	21.4	20.9	18.5	17.6	20.1	17.6	20.9	21.5	17.9	20.6	19.2	18.7	19.3	18.1	17.2	16.7	19.0	19.3	16.0	17.1	16.6	15.8	18.9
	Min.	15.8	15.0	13.9	14.4	15.5	15.2	14.8	14.9	16.5	16.5	17.4	16.5	15.5	15.5	15.6	15.6	16.5	16.5	17.7	17.2	17.2	16.7	14.4	14.0	14.7	14.6	14.0	14.9	15.2	14.5	14.3
1993	Max.	19.5	18.4	17.0	17.9	18.1	18.5	17.5	16.4	17.2	18.0	17.3	18.6	16.6	16.1	17.1	17.4	18.6	19.9	19.8	16.6	17.5	17.8	18.5	17.1	16.7	15.6	17.0	17.5	17.6	15.9	14.3
	Min.	14.6	16.9	16.1	15.7	16.1	16.1	15.2	14.4	14.1	14.2	14.6	14.8	14.9	14.5	14.4	13.4	12.9	14.2	14.5	15.9	15.6	14.1	15.1	15.4	15.1	14.1	13.2	14.1	13.5	12.9	12.7
1994	Max.	21.6	20.0	21.3	20.5	19.4	21.6	20.1	19.0	18.0	19.4	20.1	20.0	17.9	20.0	20.1	21.3	20.0	19.4	22.1	19.8	19.5	18.6	20.7	21.0	21.0	19.6	18.5	20.9	19.5	19.3	19.7
	Min.	18.9	17.8	17.0	17.8	18.0	18.0	18.8	18.1	17.0	16.9	16.9	16.3	16.7	17.1	17.6	16.3	16.9	16.6	17.2	18.4	18.1	17.6	16.8	15.9	15.5	16.9	17.5	17.3	18.3	16.2	14.9
1995	Max.	22.8	20.0	22.5	22.0	23.5	22.6	25.1	24.2	26.0	26.3	24.1	23.6	22.4	23.3	21.4	23.5	21.5	23.3	23.5	19.6	23.5	22.0	18.9	17.7	21.6	19.4	20.6	21.5	18.8	16.5	16.7
	Min.	17.0	14.6	15.6	15.8	16.5	17.1	17.1	17.8	18.1	19.1	18.9	19.2	19.0	17.8	17.0	18.0	18.0	15.9	16.0	16.2	18.3	17.4	17.0	16.5	16.4	17.3	16.0	15.4	15.6	14.9	14.9
1996	Max.	21.6	19.7	18.0	20.1	20.0	24.1	23.5	23.0	19.7	18.6	21.3	23.0	21.4	19.5	20.0	21.4	19.0	20.4	19.4	19.0	20.3	21.0	21.8	19.1	21.0	22.1	22.0	21.0	19.1	17.8	17.8
	Min.	16.9	18.1	17.0	16.1	17.6	17.0	18.4	18.9	17.6	17.1	17.4	18.0	17.0	18.0	17.4	16.8	17.5	17.3	17.7	16.0	15.6	15.1	15.6	17.4	17.2	18.0	17.1	17.6	17.8	16.4	15.3
1998	Max.	20.8	21.9	23.5	24.0	23.8	23.6	23.8	23.3	23.7	23.5	21.1	20.6	21.2	23.0	22.1	24.1	21.0	19.3	21.8	21.9	22.2	22.2	21.2	18.8	16.6	17.0	17.8	18.4	16.4	15.8	16.5
	Min.	16.3	17.0	17.5	17.8	17.5	18.4	18.0	17.9	18.5	19.2	18.9	18.9	18.0	17.0	17.0	18.3	18.7	18.4	17.8	17.0	16.3	17.0	16.0	16.7	15.4	15.3	15.6	15.4	15.3	14.9	15.1

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Appendix 8f. Maximum and minimum water temperatures (°C) measured at the counting fence in Northeast Brook, Trepassey for the month of September, 1984-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1984	Max.	18.7	17.5	16.2	16.8	16.9	16.2	15.8	14.9	14.3	15.4	15.9	16.2	15.3																	
	Min.	17.5	17.1	14.8	13.2	13.6	15.3	15.4	13.9	12.7	13.3	14.3	14.5	14.9																	
1985	Max.																														
	Min.																														
1986	Max.	17.5	16.0	15.2	14.5	15.1	17.1	18.5	15.4	17.5																					
	Min.	13.6	13.4	13.7	12.1	12.3	12.2	14.7	14.6	14.3																					
1987	Max.	15.2	15.3	15.8	16.2	13.3	13.9	16.7	15.2	14.6	13.9	11.7	13.8	14.3	16.0	14.6	15.5	15.6	15.1	13.9	11.9	13.3	12.3	12.8	14.0	13.9	12.9	11.5	10.4	10.6	12.2
	Min.	11.8	13.9	12.6	11.3	11.7	10.6	13.2	13.3	13.0	12.4	9.3	6.7	8.9	10.4	12.2	12.3	12.7	13.2	10.8	10.2	10.6	10.7	9.8	11.8	10.8	10.7	8.7	6.4	8.4	11.0
1988	Max.	20.1	19.1	16.9	16.1	17.3	15.5	15.3	16.3	17.0	17.0	16.7	16.4																		
	Min.	16.7	17.1	15.2	13.1	13.3	15.1	14.5	14.1	14.2	14.1	15.8	15.1																		
1989	Max.	16.3	17.0	16.8	17.3	18.0	18.4	18.4	18.0	18.7	18.8	18.5	19.4	19.8	17.5	15.2	15.4	14.7	15.3	14.1	15.6	16.3	16.4	15.9	16.5	14.8	14.4	13.1	12.5	12.3	11.7
	Min.	14.8	15.2	14.1	13.1	13.4	13.4	13.5	13.2	15.1	16.8	17.5	17.6	16.4	14.7	13.8	13.7	13.9	12.6	12.9	14.6	13.4	14.0	15.1	12.4	11.4	12.9	11.7	11.2	11.2	10.5
1990	Max.	19.0	20.2	17.4	19.7	21.1	21.4	18.4	18.9	19.1	16.0	15.0	15.5	15.8	16.5	17.4	18.4	17.7	17.2	16.5	15.2	15.1	15.3	16.0	15.0	14.3	13.3	14.1	13.4	13.8	13.3
	Min.	14.1	14.2	14.2	14.1	14.9	15.5	15.8	12.8	12.7	14.3	13.7	13.1	12.7	12.0	13.8	15.0	15.5	15.0	13.7	14.1	13.5	12.4	13.6	14.0	13.1	12.3	11.6	12.3	12.2	10.7
1991	Max.	15.2	15.1	16.4	16.9	18.9	18.3	17.0	16.5	16.0	15.4	13.4	14.4	14.7	13.6	15.9	14.4	15.1	15.8	16.0	14.5	13.6	13.7	14.2	15.1	14.4	14.3	14.4	14.3	13.9	12.0
	Min.	12.7	11.4	13.0	14.1	14.7	15.8	15.4	14.3	13.1	12.7	12.6	12.1	12.3	11.1	11.3	12.7	12.8	12.4	14.1	13.6	12.6	11.8	11.9	12.3	13.3	13.6	13.6	12.9	11.3	11.1
1992	Max.	19.8	18.1	17.0	17.0	17.9	17.6	18.3	16.6	17.2	18.4	21.3	18.5	18.2	19.3	19.8	17.7	18.9	16.8	19.1	17.4	16.2	16.2	16.2	15.2	15.6	15.9	17.0	14.8	17.1	15.1
	Min.	16.1	15.9	14.8	13.4	12.6	12.7	11.9	14.4	14.5	16.0	16.6	17.2	16.1	14.7	15.2	15.6	13.8	15.5	15.7	16.4	14.5	14.4	14.2	14.1	12.7	12.0	12.0	13.2	13.3	14.2
1993	Max.	17.5	17.4	15.9	15.6	17.2	16.9	17.3	16.1	14.9	14.2	15.4	14.8	15.1	15.8	15.6	15.8	15.8	13.2	12.9	12.2	13.6	12.9	12.6	13.1	14.1	13.2	13.3	13.3	13.0	12.9
	Min.	12.6	11.9	14.2	14.1	13.4	14.2	14.9	14.3	13.4	13.1	13.1	12.4	13.0	13.8	13.8	11.9	11.1	12.4	12.2	11.4	10.8	10.7	11.6	11.6	11.4	11.6	12.2	12.9	12.4	12.4
1994	Max.	18.4	19.5	18.6	16.4	15.5	15.3	16.9	17.5	18.4	17.4	15.9	16.9	15.8	15.9	16.1	14.5	14.0	14.8	14.6	14.6	13.4	14.4	14.3	14.2	16.1	16.7	14.4	13.1	13.1	13.3
	Min.	15.9	14.6	13.9	14.4	13.7	13.6	14.1	14.9	14.7	16.0	14.9	14.8	14.6	13.3	12.5	12.4	13.6	13.9	13.3	12.4	12.0	10.9	10.6	11.5	12.8	13.6	12.6	11.9	11.7	12.1
1995	Max.	17.7	18.7	22.1	21.6	22.9	20.5	20.0	21.6	19.1	17.5	18.4	19.9	19.0	16.6	15.8	19.1	15.1	14.4	15.9	14.6	18.5	16.3	16.0	15.6	14.9	16.0	15.4			
	Min.	14.4	15.5	15.4	16.2	16.4	15.6	15.6	16.2	16.7	15.9	14.6	13.8	14.8	15.3	13.8	12.9	12.6	12.9	12.3	12.7	13.3	14.1	14.1	12.9	12.1	12.9	13.4			
1996	Max.	19.4	17.6	17.0	17.4	20.0	20.1	17.5	16.6	16.2	17.4	18.5	17.0	16.1	16.2	14.1	15.6	16.5	15.3	14.0	14.0	15.1	15.1	14.3	12.2	12.3	10.9	10.9	11.8	12.6	13.9
	Min.	15.8	15.7	14.6	15.1	14.9	15.7	15.0	12.7	13.3	12.5	14.6	14.7	13.4	13.1	13.1	11.9	11.3	12.3	12.9	13.1	11.8	12.9	12.1	11.6	10.7	10.4	9.9	9.4	10.1	11.1
1998	Max.	18.5	17.1	15.4	14.1	14.0	13.7	12.9	13.4	13.8	13.6	14.6	15.9	15.2	15.1	13.9	13.4	13.4	13.8	13.4	14.3	12.7	12.9	13.3	13.9	13.4	12.5	11.8	11.8	12.3	12.9
	Min.	14.9	14.3	13.7	13.8	12.9	12.2	12.6	12.6	13.3	13.5	13.4	13.6	14.0	12.9	13.1	12.1	11.9	11.0	11.9	11.1	11.9	12.3	12.3	11.9	11.1	10.7	10.4	10.9	10.8	11.1

Appendix 8g. Maximum and minimum water temperatures (°C) measured at the counting fence in Northeast Brook, Trepassey for the month of October, 1984-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1984	Max.																															
	Min.																															
1985	Max.																															
	Min.																															
1986	Max.																															
	Min.																															
1987	Max.	13.0	14.8	13.2																												
	Min.	12.1	12.6	10.0																												
1988	Max.																															
	Min.																															
1989	Max.	11.7	12.9	12.1	12.1	12.0	12.1	11.7	11.3	10.9	10.7	9.8	9.3	10.1	10.1	9.7	9.6	9.4	9.0	9.1	9.4	8.9	9.3	8.9	8.4							
	Min.	9.7	10.4	11.1	10.9	10.7	10.1	10.9	10.4	10.1	9.8	9.3	8.5	8.6	8.6	8.4	8.5	8.1	7.7	6.6	6.6	7.6	8.1	7.3	7.2							
1990	Max.	13.8	13.3																													
	Min.	12.0	12.3																													
1991	Max.	11.1	12.5	12.1	12.4	11.9	11.4	11.9	11.9	11.0	11.0	10.6	10.6	11.1	10.6	10.1	10.4															
	Min.	10.8	10.9	11.9	11.4	11.0	11.0	11.4	10.7	9.9	9.4	10.0	10.1	10.6	9.4	9.1	8.5															
1992	Max.																															
	Min.																															
1993	Max.	13.2	11.9	12.6	12.1	12.2	11.6	11.6	11.6	10.9	10.9	10.6	9.6	10.5	9.8	10.1																
	Min.	11.7	10.9	11.3	11.1	10.6	9.6	10.2	9.3	10.1	9.9	9.1	8.9	8.9	8.3	7.6																
1994	Max.	13.5	12.9	13.1	12.9	13.1	13.4	13.6	14.2	13.9	13.3	12.8	10.5	10.1	9.4	9.9	9.6	8.9	9.7	9.2	9.6	8.4	9.3	8.9	9.6							
	Min.	12.1	11.1	10.9	10.5	10.6	10.9	10.6	11.0	11.9	12.4	10.6	9.0	9.1	8.4	8.3	8.3	8.1	8.6	8.1	7.6	7.3	7.6	8.3	8.6							
1995	Max.																															
	Min.																															
1996	Max.	13.1	12.8																													
	Min.	11.1	10.4																													
1998	Max.	12.4	12.1	11.9	11.4	9.9																										
	Min.	12.0	11.1	10.4	9.9	9.5																										

Appendix 9a. Maximum and minimum water temperatures (°C) measured at the fishway in Northeast River, Placentia for the month of June, 1984-98.

Year		Date																											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1984	Max.																				18.0	18.0	17.0	13.8	13.8	19.1	20.1	18.0	15.9	19.6	20.1
	Min.																				18.0	15.9	12.8	12.8	12.8	11.2	12.8	13.8	14.9	13.8	15.9
1985	Max.																														
	Min.																														
1987	Max.															14.4	15.8	18.5	16.5	19.3	16.8	19.1	19.1	20.7	20.7	17.5	18.0	19.6	18.5	18.1	20.3
	Min.															11.1	11.2	11.2	12.9	10.9	12.4	13.3	12.6	12.3	14.2	14.0	12.2	12.3	12.8	12.9	13.7
1988	Max.																18.3	17.2	14.8	16.5	18.5	18.0	18.1	16.4	17.6	15.9	14.3	14.4	16.8	17.1	14.9
	Min.																12.4	13.7	13.0	12.7	13.9	14.7	14.8	14.3	14.6	14.1	13.3	12.5	14.4	14.5	14.2
1989	Max.																19.2	21.3	18.6	15.8	16.4	19.6	17.9	17.8	21.0	23.1	20.7	23.2	22.7	18.8	21.6
	Min.																11.1	12.4	13.9	14.5	14.3	15.0	15.0	14.2	14.7	17.3	16.9	16.2	18.9	17.0	15.0
1990	Max.															18.0	18.0	17.0	13.8	13.8	19.1	20.1	18.0	15.9	19.6	20.1					
	Min.															18.0	15.9	12.8	12.8	12.8	11.2	12.8	13.8	14.9	13.8	15.9					
1991	Max.									13.4	17.0	17.7	14.8	17.1	14.3	15.9	18.0	19.5	15.0	19.3	21.3	16.9	19.8	22.4	17.5	20.1	22.3	24.4	19.7	14.7	16.0
	Min.									11.2	9.7	12.2	12.4	12.4	11.6	9.9	9.5	10.3	10.9	11.6	13.9	12.0	9.7	11.7	12.6	9.6	11.4	14.9	14.8	12.4	10.2
1992	Max.															19.2	17.4	17.0	13.4	16.4	16.9	20.6	18.0	19.3	20.9	21.5	18.0	16.9	20.5	18.4	20.4
	Min.															18.0	15.3	13.5	9.3	9.9	11.9	12.1	13.7	13.4	14.8	14.8	15.1	14.3	13.9	14.7	11.9
1993	Max.													15.2	19.5	14.6	21.4	22.1	20.0	20.0	20.3	18.3	15.8	11.6	14.4	16.4	15.6	18.0	15.7	15.1	14.6
	Min.													13.2	9.4	11.5	11.4	14.4	15.3	14.4	12.1	12.3	11.9	9.1	8.2	10.9	12.0	12.4	15.1	14.0	13.1
1994	Max.												19.4	20.6	16.5	21.3	17.6	21.4	19.6	20.1	22.4	17.9	21.8	21.5	21.6	21.0	22.0	20.5	17.0	17.8	22.8
	Min.												16.8	13.4	13.9	14.3	15.2	14.1	14.7	11.8	13.4	14.2	13.8	14.5	14.6	13.7	13.4	13.1	13.7	15.1	15.3
1995	Max.												16.5	15.6	15.3	17.3	18.5	17.1	15.9	18.4	18.5	20.1	19.3	22.2	18.8	16.6	18.4	17.8	19.5	19.0	15.8
	Min.												14.2	12.6	13.4	13.9	13.8	13.1	13.6	13.1	12.5	13.4	13.9	14.6	15.4	14.4	11.1	11.4	12.9	12.7	12.1
1996	Max.																				17.2	14.2	15.2	19.0	21.0	22.6	17.8	13.6	20.4	19.6	21.8
	Min.																				13.4	10.9	10.4	10.6	11.1	12.6	13.6	12.6	11.4	12.4	14.2
1997	Max.											18.3	14.4	14.6	15.1	17.9	19.2	17.5	17.9	16.8	19.9	17.4	15.1	13.7	15.6	19.0	17.1	18.0	20.5	21.5	22.5
	Min.											13.7	11.4	11.8	11.5	11.2	11.9	14.9	15.2	13.9	13.7	14.9	13.6	12.4	10.9	8.7	9.8	12.9	13.9	15.4	16.0
1998	Max.											16.5	18.7	20.3	21.6	23.0	22.5	21.8	21.4	21.3	19.3	20.4	22.5	23.0	23.2	23.0	19.5	17.4	19.9	21.1	19.0
	Min.											12.4	10.9	12.4	12.4	13.4	15.0	15.8	16.8	17.1	14.7	11.9	13.7	13.9	15.9	17.0	14.9	11.4	10.4	12.3	15.4

Appendix 9b. Maximum and minimum water temperatures (°C) measured at the fishway in Northeast River, Placentia for the month of July, 1984-98.

Year		Date																													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1984	Max.	23.2	22.2	21.2	19.1	22.2	20.1	24.3	24.3	24.3	25.3	23.2	25.3	22.2	26.4	23.2	23.2	21.2	24.3	22.2	24.3	26.4	23.2	24.3	22.2	23.2	24.3	24.3	21.2	20.1	25.3	25.3
	Min.	17.5	18.0	15.9	16.5	17.0	18.0	17.0	20.1	21.2	21.2	20.1	20.1	19.1	18.0	19.1	17.0	18.5	18.0	18.0	19.1	19.6	19.6	18.0	18.5	17.0	17.5	18.5	18.5	18.5	17.0	18.0
1985	Max.	17.8	18.8	21.0	21.0	22.1	24.8	21.0	19.4	17.8	20.5	18.8	18.8	21.0	22.1	19.9	17.8	17.8	18.8	18.3	16.7	19.9	19.9	18.8	19.9	19.9	20.5	18.8	21.0	21.0	18.8	21.5
	Min.	11.3	12.4	14.5	15.6	16.1	16.7	17.8	17.8	16.7	16.7	17.8	18.8	17.8	17.8	18.3	17.2	17.2	16.7	16.7	16.7	15.6	16.1	17.2	16.7	16.7	16.7	17.8	17.2	16.7	16.7	16.7
1987	Max.	18.3	22.2	20.8	20.4	18.1	12.8	19.1	25.0	24.6	24.8	22.3	25.9	24.6	25.1	23.7	22.2	23.0	25.5	20.7	24.3	22.0	22.5	23.9	25.5	20.9	17.3	24.5	21.8	24.5	25.6	25.5
	Min.	13.1	12.0	12.0	11.5	13.0	10.0	8.6	14.6	17.5	17.9	16.8	16.3	20.1	20.5	19.7	20.0	18.3	15.8	16.3	13.9	14.3	12.2	12.0	15.6	17.2	15.9	17.9	15.9	16.4	17.1	18.3
1988	Max.	16.5	16.5	16.7	18.4	17.7	19.1	16.9	17.8	16.7	18.7	17.2	18.1	16.7	16.6	17.1	18.0	15.3	18.3	19.9	16.8	19.3	16.0	19.9	19.5	16.5	15.5	17.7	18.1	19.3	21.3	21.5
	Min.	14.6	15.2	16.0	14.6	15.3	15.5	16.1	15.7	15.6	16.1	15.9	16.1	16.2	13.9	14.2	14.9	14.2	14.5	15.4	16.2	14.6	15.4	14.6	15.4	15.5	13.6	13.4	14.6	15.7	16.9	18.0
1989	Max.	19.3	20.1	18.3	22.2	21.3	20.6	18.8	18.1	16.3	19.9	19.3	19.1	19.3	21.2	18.2	21.7	20.8	18.9	22.3	20.8	22.8	19.2	21.2	22.5	19.8	21.4	23.6	23.1	21.1	22.4	23.0
	Min.	14.9	14.3	14.2	13.6	14.6	16.2	16.0	16.2	15.4	15.5	17.8	17.1	16.7	16.7	15.6	15.8	15.9	17.6	17.0	17.2	16.5	16.6	15.2	15.7	17.3	15.6	17.1	18.7	19.9	18.8	17.7
1990	Max.	23.2	22.2	21.2	19.1	22.2	20.1	24.3	24.3	24.3	25.3	23.2	25.3	22.2	26.4	23.2	23.2	21.2	24.3	22.2	24.3	26.4	23.2	24.3	22.2	23.2	24.3	24.3	21.2	20.1	25.3	25.3
	Min.	17.5	18.0	15.9	16.5	17.0	18.0	17.0	20.1	21.2	21.2	20.1	20.1	19.1	18.0	19.1	17.0	18.5	18.0	18.0	19.1	19.6	19.6	18.0	18.5	17.0	17.5	18.5	18.5	18.5	17.0	18.0
1991	Max.	16.4	19.1	18.7	23.0	24.0	20.8	21.7	17.5	21.7	23.4	21.3	24.6	19.2	17.8	23.5	23.0	19.1	19.8	25.0	25.0	20.6	21.3	17.5	24.1	24.1	20.1	20.9	24.5	24.8	25.3	20.2
	Min.	11.2	11.1	10.8	11.8	13.3	14.8	14.1	14.1	13.0	13.9	14.4	14.2	14.5	12.8	14.6	14.8	15.5	15.1	14.6	17.1	14.9	14.1	14.1	15.8	16.5	17.3	16.5	16.1	15.6	15.6	16.1
1992	Max.	16.5	15.6	13.1	13.2	18.2	14.5	12.9	15.9	18.9	16.3	15.3	15.7	16.9	19.1	17.1	18.8	17.1	20.0	17.0	20.2	20.9	20.5	21.2	20.3	22.3	21.4	22.6	19.9	20.5	23.4	23.4
	Min.	13.4	11.6	10.5	9.9	8.4	11.9	11.9	12.6	13.1	13.8	13.1	14.1	13.3	13.9	14.4	14.1	14.3	12.7	14.2	13.7	15.3	16.8	14.4	15.0	15.0	15.1	15.6	15.9	15.8	16.5	17.1
1993	Max.	18.1	19.8	17.5	16.0	15.6	17.0	18.3	17.4	16.8	19.4	18.5	22.1	19.1	19.5	17.5	17.2	17.1	17.1	18.1	21.2	18.0	18.9	17.0	16.4	18.5	20.7	21.2	18.8	22.0	19.9	18.6
	Min.	13.1	13.9	15.0	14.3	13.8	13.1	13.9	15.7	14.6	14.6	16.0	15.8	16.5	15.7	15.3	14.6	15.5	15.1	14.4	14.2	15.8	14.6	15.9	15.3	13.1	14.8	15.1	15.6	16.4	17.6	15.8
1994	Max.	22.1	20.5	23.3	22.0	18.5	20.1	23.1	23.9	19.1	18.4	24.0	26.4	22.8	24.9	20.7	21.8	23.3	21.6	19.9	22.5	20.2	19.4	19.1	18.1	21.2	21.2	20.5	21.0	23.0	24.6	25.1
	Min.	17.3	17.9	16.3	14.8	15.2	14.5	13.9	15.3	16.0	15.6	15.6	15.6	17.7	16.4	16.0	15.6	15.1	15.4	17.0	16.4	17.0	17.1	17.1	15.5	16.5	18.2	19.2	19.0	18.8	16.9	19.5
1995	Max.	14.5	16.1	20.0	21.6	22.0	23.4	25.1	25.9	22.6	20.0	24.9	26.0	21.4	23.5	19.6	17.5	20.8	15.9	14.9	19.4	17.4	20.9	18.8	20.9	22.0	19.6	20.8	22.1	18.4	22.5	20.0
	Min.	12.1	13.6	14.0	13.4	15.7	14.6	15.8	17.4	18.8	17.5	17.8	16.9	17.3	15.4	15.3	12.9	11.5	12.4	11.9	13.4	15.8	14.7	16.3	16.2	16.4	17.6	15.9	15.6	15.4	16.1	17.0
1996	Max.	18.4	15.9	18.5	18.8	18.4	20.1	17.8	19.9	21.1	18.6	18.8	21.9	23.1	20.0	20.0	18.1	18.4	20.1	20.8	20.5	19.7	19.2	19.5	20.4	19.8	23.0	22.2	22.5	19.6	23.1	22.6
	Min.	15.5	14.4	14.4	17.0	17.5	17.1	16.2	14.6	16.4	16.5	16.5	15.4	16.3	16.2	15.2	15.9	15.8	16.1	16.6	17.2	18.4	17.5	16.4	16.4	16.6	17.5	18.4	18.0	17.5	17.0	17.5
1997	Max.	22.5	20.4	23.0	20.0	22.4	21.3	25.3	24.6	24.8	20.8	23.2	22.8	23.1	19.1	21.1	19.6	24.1	25.0	23.3	20.4	22.1	24.6	23.8	22.7	23.1	21.2	17.1	18.1	20.4	23.0	24.1
	Min.	17.7	14.1	16.8	17.9	15.5	15.4	16.3	17.0	18.9	17.2	15.8	16.6	17.0	15.8	12.9	14.6	15.7	17.0	18.0	16.0	15.5	15.2	15.9	15.3	14.7	14.9	14.4	14.9	14.7	13.8	15.4
1998	Max.	18.3	20.6	23.5	19.8	18.3	20.5	22.8	19.4	17.1	16.0	15.4	16.7	20.3	21.7	24.0	24.7	21.5	22.6	23.1	20.1	22.0	22.1	20.4	21.3	23.1	24.1	24.3	25.0	23.8	22.3	21.5
	Min.	14.8	15.1	14.6	16.0	15.8	15.9	16.0	15.4	15.1	12.9	13.9	14.4	14.4	15.3	16.6	18.3	19.9	17.5	17.8	18.5	18.1	18.3	16.8	18.8	16.8	18.6	17.8	19.4	18.9	20.3	19.1

Appendix 9c. Maximum and minimum water temperatures (°C) measured at the fishway in Northeast River, Placentia for the month of August, 1984-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1984	Max.	23.2	21.2	24.3	26.4	24.3	25.3	26.4	27.4	25.3	25.3	21.2	21.2	19.6	23.2	25.3	24.3	24.3	23.2	20.6	21.2	21.2	22.2	23.8	22.2	21.2	20.1	20.1	20.1	21.7	21.2	20.1
	Min.	18.0	20.1	18.0	17.5	20.1	19.6	20.1	21.2	21.2	14.9	18.5	19.1	17.0	19.6	18.0	17.0	20.1	22.2	19.6	20.1	20.1	18.0	19.1	20.1	18.5	18.0	18.0	19.1	19.1	19.1	19.1
1985	Max.	18.8	17.8	19.4	17.8	21.5	21.0	19.9	21.0	23.1	23.1	24.8	23.1	21.0	19.9	21.0	18.8	19.9	17.8	21.0	18.8	18.8	18.3	17.8	17.8	21.0	22.1	20.5	16.7	14.5	14.5	14.5
	Min.	16.7	14.5	13.5	15.6	14.5	16.7	17.8	16.7	18.8	18.8	19.9	19.9	18.8	17.2	15.6	15.1	15.1	15.6	14.5	15.6	15.6	15.6	15.6	14.5	14.5	15.6	16.1	13.5	13.5	12.9	11.8
1987	Max.	21.9	21.0	19.3	19.3	22.5	22.6	23.8	22.3	23.0	22.7	23.7	18.1	13.8	19.8	18.5	17.7	18.5	18.7	23.8	23.6	20.3	23.3	19.8	19.8	17.8	18.7	19.3	19.5	15.2		
	Min.	18.5	17.8	17.0	15.4	16.5	16.3	14.5	14.3	13.7	15.1	14.8	12.9	10.9	9.7	13.9	13.8	13.0	12.5	14.3	16.4	16.1	14.5	13.6	15.3	12.8	12.3	12.3	11.7	11.8		
1988	Max.	22.2	19.3	21.2	21.2	22.6	19.9	17.4	18.4	20.6	19.4	22.8	21.4	23.7	17.9	19.4	18.8	19.6	15.3	18.4	18.0	19.2	17.9	16.6	19.5	21.1	21.8	19.4	19.6	17.5	18.7	16.9
	Min.	18.0	17.6	16.0	14.6	16.5	15.0	14.4	16.5	17.4	17.6	17.2	15.7	17.9	14.0	11.7	14.5	13.4	13.7	14.3	14.3	14.0	15.8	13.3	13.0	13.2	13.8	13.4	16.7	16.0	16.6	15.9
1989	Max.	24.3	24.5	25.1	24.1	20.7	20.8	19.5	20.0	20.2	21.9	23.1	23.6	20.4	19.1	22.2	22.3	22.7	21.1	21.4	22.5	19.1	20.7	20.3	19.6	18.1	17.3	17.0	16.2	18.8	18.8	16.2
	Min.	16.9	17.0	16.5	16.7	17.3	19.5	19.2	19.5	18.8	17.7	18.8	19.0	19.0	17.7	18.5	19.6	20.1	18.7	16.8	17.2	17.8	18.4	18.9	17.8	16.9	15.6	14.4	14.2	12.9	15.0	15.7
1990	Max.	23.2	21.2	24.3	26.4	24.3	25.3	26.4	27.4	25.3	25.3	21.2	21.2	19.6	23.2	25.3	24.3	24.3	23.2	20.6	21.2	21.2	22.2	23.8	22.2	21.2	20.1	20.1	20.1	21.7	21.2	20.1
	Min.	18.0	20.1	18.0	17.5	20.1	19.6	20.1	21.2	21.2	14.9	18.5	19.1	17.0	19.6	18.0	17.0	20.1	22.2	19.6	20.1	20.1	18.0	19.1	20.1	18.5	18.0	18.0	19.1	19.1	19.1	19.1
1991	Max.	17.6	16.0	14.4	14.9	15.0	18.0	20.0	23.0	22.4	17.6	19.5	23.0	23.5	24.8	21.0	23.7	25.0	24.0	19.0	20.1	17.4	18.6	17.6	20.3	19.7	17.9	21.1	20.9	19.3	17.3	17.1
	Min.	14.9	13.9	11.6	12.1	11.9	12.1	12.3	13.5	12.9	13.9	14.6	15.6	15.8	16.9	17.1	16.0	17.1	18.0	15.1	14.9	15.8	17.1	15.3	12.1	13.1	15.1	12.9	14.4	15.4	15.9	12.9
1992	Max.	20.3	17.5	21.4	18.1	19.4	21.6	22.8	23.0	23.5	23.7	19.2	18.6	22.2	18.1	22.5	22.9	18.0	21.9	19.3	21.4	20.1	18.0	17.5	15.4	17.3	19.3	14.8	15.6			
	Min.	16.0	15.3	12.9	14.4	16.0	16.4	14.5	14.7	15.4	15.3	17.8	16.8	14.7	14.4	14.6	13.9	15.7	15.9	17.9	16.3	17.4	16.1	12.8	13.1	14.6	11.9	12.5	14.5			
1993	Max.	22.5	22.4	20.5	23.3	21.4	23.1	20.8	19.5	20.4	21.9	20.8	20.4	19.9	18.2	19.8	21.0	22.7	22.0	22.1	19.1	18.5	21.0	22.0	19.5	18.7	17.1	18.1	18.9	19.2	18.4	14.8
	Min.	17.5	19.3	18.9	19.0	19.9	18.8	18.0	16.0	14.9	15.7	15.6	17.4	16.1	15.9	15.5	14.2	14.4	15.9	14.9	17.4	17.1	13.6	15.4	16.9	16.3	14.6	12.9	14.1	13.0	12.3	12.1
1994	Max.	22.4	20.6	21.0	23.5	22.0	23.5	22.4	21.6	21.4	23.5	22.4	21.4	21.4	20.7	22.0	22.0	19.5	22.7	22.1	20.0	19.0	18.4	22.2	22.0	22.1	22.9	19.7	21.4	22.4	19.3	19.5
	Min.	19.3	17.1	16.0	17.5	19.2	20.5	20.6	19.8	19.5	18.9	17.9	16.0	17.7	19.7	18.0	15.7	16.5	16.1	15.9	17.3	18.0	17.0	14.6	14.9	15.1	17.4	18.0	18.0	18.8	15.6	13.1
1995	Max.	21.6	20.9	23.2	21.6	23.6	23.2	23.3	24.6	25.4	25.5	25.1	22.6	21.0	22.4	19.0	24.4	20.3	20.9	21.8	22.5	24.9	20.0	15.7	16.6	18.3	16.9	16.1	20.4	17.3	15.1	13.6
	Min.	16.3	13.1	14.1	14.5	14.9	16.1	16.6	16.4	16.8	16.9	18.0	19.6	17.0	14.2	14.5	17.4	15.9	11.9	13.7	15.6	19.3	15.6	13.3	13.5	14.6	15.1	13.8	12.3	13.6	12.7	12.7
1996	Max.	23.3	20.4	21.2	23.5	23.6	26.9	26.8	26.1	21.4	20.6	21.2	24.1	22.4	19.7	22.8	24.1	21.0	23.0	22.0	19.4	22.4	24.5	24.2	20.3	20.5	21.2	22.6	22.0	19.4	18.0	19.0
	Min.	18.0	18.1	18.4	17.9	18.6	18.0	19.2	19.5	18.4	17.9	17.3	18.4	17.2	18.3	17.4	16.8	18.2	18.2	18.8	15.4	14.1	16.4	16.3	17.5	17.2	15.9	15.9	17.5	16.1	15.4	15.6
1997	Max.	19.4	21.5	23.4	21.1	21.1	23.7	24.5	23.1	24.7	23.8	26.3	20.8	19.8	18.0	21.5	18.8	20.5	16.9	15.6	21.8	22.0	18.4	21.8	22.1	21.3	23.5	24.3	19.7	17.5	16.5	17.9
	Min.	16.5	16.4	17.3	17.2	18.0	18.3	15.4	16.0	18.0	17.9	17.6	18.0	16.0	16.3	15.3	16.5	16.5	13.8	12.1	10.2	13.0	14.4	15.4	17.0	17.5	17.3	17.0	17.3	15.1	15.1	13.6
1998	Max.	23.9	23.5	25.5	25.9	25.8	25.2	25.8	24.5	25.7	25.7	26.3	23.9	21.0	23.9	22.5	26.4	23.0	19.7	22.5	22.1	22.4	23.0	22.3	20.3	18.2	17.9	19.5	20.3	18.5	17.0	20.0
	Min.	17.1	17.1	18.3	17.0	17.9	18.2	18.1	18.5	19.1	19.9	20.7	21.1	18.3	15.9	18.0	18.0	17.6	18.6	18.3	17.5	16.8	17.6	16.5	17.5	17.6	17.3	16.5	16.6	16.3	15.6	16.3

Appendix 9d. Maximum and minimum water temperatures (°C) measured at the fishway in Northeast River, Placentia for the month of September, 1984-98.

Year		Date																												
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1984	Max.	20.1	20.1	18.0	17.0																										
	Min.	19.1	19.1	15.9	15.9																										
1985	Max.	13.5	12.4	13.5	13.5	15.1	14.0																								
	Min.	11.3	10.2	11.3	11.3	12.4	12.9																								
1987	Max.																														
	Min.																														
1988	Max.	20.0																													
	Min.	13.7																													
1989	Max.																														
	Min.																														
1990	Max.	20.1	20.1	18.0	17.0																										
	Min.	19.1	19.1	15.9	15.9																										
1991	Max.	13.4	14.9	19.0	20.4	18.1	19.1	17.5	17.4	16.2	17.5	13.9	13.8	13.9	14.0	16.0	14.3	18.9	15.1												
	Min.	10.7	9.4	11.8	14.2	15.8	16.0	15.5	14.2	11.7	12.3	11.9	11.6	11.4	10.3	10.4	12.6	13.8	11.6												
1992	Max.																														
	Min.																														
1993	Max.	20.8	16.1																												
	Min.	11.6	11.4																												
1994	Max.	16.5																													
	Min.	15.3																													
1995	Max.																														
	Min.																														
1996	Max.	19.5	17.5	18.0	17.1	20.3	18.0																								
	Min.	16.5	16.0	14.5	15.8	15.2	15.4																								
1997	Max.	19.6	18.5	16.5	16.4	18.5	17.0	20.5	17.2	15.3	15.6	17.5	18.5	16.5	17.0	15.9	18.4	15.6	17.5	17.0	18.4	17.0	15.0	14.6	13.8	11.9					
	Min.	13.3	15.9	15.1	15.6	14.5	15.4	16.0	15.4	14.2	13.8	13.6	14.3	15.6	15.3	15.1	13.6	13.9	13.6	15.1	15.9	13.4	12.8	12.6	10.6	10.6					
1998	Max.	21.9	18.8	14.4																											
	Min.	16.0	14.6	13.1																											

Appendix 10. Mean daily water levels (cm) measured near the counting fence in Indian Bay Brook, 1997-98.

Month	Day	1997	1998
June	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		79.0
	10		79.0
	11		76.3
	12		75.0
	13		73.8
	14		71.3
	15		69.5
	16		67.8
	17		65.8
	18		64.8
	19		63.0
	20		62.5
	21		62.5
	22		59.8
	23		58.0
	24	58.0	56.5
	25	57.2	56.0
	26	54.5	54.0
	27	53.4	53.3
	28	51.9	52.0
	29	50.4	49.3
	30	49.0	48.0
July	1	48.0	48.3
	2	46.0	49.3
	3	45.0	47.7
	4	44.0	46.3
	5	42.8	46.0

Appendix 10 (cont'd)

Month	Day	1997	1998
July	6	43.7	46.0
	7	41.2	45.3
	8	38.9	45.0
	9	37.7	44.3
	10	37.4	47.0
	11	38.7	44.3
	12	38.0	43.3
	13	36.2	43.0
	14	35.3	42.0
	15	35.8	42.7
	16	34.0	43.3
	17	33.0	43.3
	18	33.0	45.0
	19	34.5	48.7
	20	34.3	45.3
	21	33.0	44.0
	22	32.0	43.0
	23	31.0	42.7
	24	29.7	42.0
	25	30.0	42.0
	26	28.8	41.7
	27	27.0	41.0
	28	26.3	40.3
	29	27.5	40.0
	30	27.0	39.0
	31	26.0	40.0
August	1	25.0	39.0
	2	24.2	39.0
	3	23.0	38.0
	4	24.0	38.0
	5	24.6	37.0
	6	27.7	36.3
	7	29.2	36.0
	8	27.3	35.3
	9	25.3	35.0
	10	24.2	33.7
	11	23.3	33.0
	12	23.2	32.7

Appendix 10 (cont'd)

Month	Day	1997	1998
August	14	22.5	34.3
	15	22.0	33.3
	16	21.3	32.0
	17	20.8	33.3
	18	22.2	34.3
	19	21.3	35.3
	20	20.5	38.7
	21	20.0	37.0
	22	19.9	35.3
	23	18.8	35.0
	24	19.3	34.3
	25	18.5	37.3
	26	18.7	39.3
	27	18.7	57.7
	28	19.3	44.7
	29	19.2	43.3
	30	18.2	42.7
	31	25.8	44.0
September	1	26.3	47.3
	2	23.7	46.7
	3	23.0	46.0
	4	23.0	46.0
	5	35.3	46.0
	6	38.0	70.8
	7	36.0	68.7
	8	35.0	68.7
	9	36.0	74.0
	10	36.0	81.3
	11	38.7	87.7
	12	41.0	90.0
	13	41.3	94.7
	14	44.3	92.7
	15	46.0	91.7
	16	47.0	91.0
	17	46.3	99.0
	18	45.5	97.7
	19	45.0	94.3

Appendix 10 (cont'd)

Month	Day	1997	1998
September	20	45.0	95.7
	21	45.7	92.0
	22	44.0	92.0
	23	44.0	96.3
	24	44.0	96.7
	25	43.5	90.3
	26	41.0	90.7
	27		89.3
	28	39.0	94.7
	29	39.0	116.0
	30	38.0	97.0
October	1	37.7	91.0
	2	37.3	91.0
	3	41.3	95.0
	4	38.0	93.0
	5	37.0	94.0
	6	37.0	94.0
	7	35.7	103.0
	8	35.0	92.0
	9	35.0	92.0
	10	35.0	91.0
	11	34.0	89.0
	12	34.0	88.0
	13	34.3	88.0
	14	35.0	89.0
	15	35.0	89.0
	16	33.3	86.0
	17	33.0	
	18	33.7	

Appendix 11. Mean daily water levels (cm) measured near the fishway in Middle Brook, 1983-98.

Month	Day	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
June	2																32.5
	3																32.0
	4																31.5
	5																31.8
	6														17.3		31.3
	7														32.0		31.8
	8														32.5		32.3
	9						51.5								35.0		33.5
	10						51.5								34.3		33.2
	11									35.0						36.5	33.2
	12							15.5	30.0	36.0				23.0	32.5	36.8	32.3
	13						55.3	15.3	28.8	37.5			39.0	22.3	31.3	36.0	31.2
	14						53.5	14.8	27.5	39.3			38.3	23.0	31.2		30.5
	15		46.5			25.5	52.0	13.7	26.3	39.8		22.8	38.8	26.7	30.2		31.0
	16		46.9		26.3	25.7	49.0	12.8	25.3	40.0	36.5	22.3	38.8	29.3	29.2	38.0	28.2
	17		46.2	30.5	24.8	28.8	47.0	11.5	29.0	39.0	38.8	21.5	37.8	28.8	29.2	37.2	29.0
	18		45.2	31.3	24.5	28.8		11.5	28.3	38.3	40.8	20.8	36.8	28.5	28.3	36.3	27.5
	19		44.6	30.5	23.3	27.8		14.0	27.7	37.3	41.8	19.7	35.5	28.7	27.0	35.7	26.5
	20	25.9	42.0	30.0	22.5	27.5	45.0	10.8	28.2	36.3	40.7	20.3	34.0	28.3	28.0	34.8	25.3
	21	24.9	40.0	30.7	21.5	26.0	43.2	11.2	35.8	35.0	39.8	22.7	33.0	27.3	30.0	33.8	27.3
	22	23.4	38.0	31.5	20.3	25.8	41.8	12.3	37.8	32.8	39.0	23.8	32.2	26.3	30.8	34.7	27.7
	23	22.8	36.1	31.0	20.2	24.3	39.3	11.8	38.3	32.0	38.3	23.3	34.0	25.0	29.8	35.3	26.0
	24	21.0	34.1	29.0	19.7	23.3	37.3	10.8	37.3	30.7	37.2	26.2	34.3	23.0	28.5	36.3	24.5
	25	20.4	32.5	28.3	18.8	23.3	34.5	10.0	37.8	28.2	36.3	28.5	34.3	23.7	27.0	35.3	22.5
	26	18.3	31.3	28.0	17.8	21.3		10.5	37.3	26.8	35.5	30.3	33.8	26.7	26.2	34.0	20.4
	27	16.8	30.3	27.3	17.0	19.5		9.8	36.5	25.7	34.8	31.2	33.8	28.3	29.0	32.0	19.8
	28	14.9	30.8	26.8	15.8	19.7	30.7	9.0	35.0	24.8	33.2	30.3	33.0	27.3		30.0	20.0
	29	34.5	29.5	26.0	16.3	17.3	30.5	8.5	33.8	25.0	31.7	31.7	33.5	26.0	28.0	28.0	19.6
	30	32.3	28.0	31.5	16.2	16.1	34.5	8.3	32.8	26.0	30.3	33.5	33.2	24.8	26.7	26.5	17.8
July	1	31.0	26.8	31.7	18.2	16.1	36.3	7.9	32.3	24.3	30.8	35.3	32.3	25.5	24.7	24.3	16.8
	2	30.2	27.7	31.6	21.6	15.9	35.8	7.0	31.0	23.8	33.3	35.3	31.3	25.7	22.3	21.8	17.0
	3	30.8	27.3	30.8	21.0	14.4	37.3	6.0	29.3	24.3	33.7	34.3	30.0	27.8	21.8	21.8	16.9
	4	32.1	26.0	30.4	19.2	13.1	38.0	5.3	27.5	23.0	34.2	33.3	27.5	33.8	26.3	22.4	15.7
	5	31.3	23.9	30.0	20.2	13.0	35.8	6.0	26.3	21.5	34.5	35.3	26.2	33.5	28.8	21.8	15.3
	6	30.5	22.8	29.1	20.7	10.8	33.3	5.1	25.1	20.3	33.7	36.8	25.3	32.0	30.9	21.2	15.0
	7	29.6	21.4	27.5	21.3	10.5	31.2	4.3	22.5	22.3	34.5	36.5	26.0	30.5	32.6	19.8	14.3
	8	35.5	20.0	26.1	20.6	9.8	30.0	3.3	21.7	23.0	33.8	35.3		29.0	30.6	18.8	13.0
	9	35.3	17.6	27.2	21.7	9.3	28.9	5.0	20.9	22.3	32.6	34.4	24.2	26.7	28.8	18.7	12.0
	10	34.6	18.4	26.4	26.8	8.3	26.7	4.7	19.8	21.0	32.2	33.8	24.0	24.7	27.8	18.6	12.5
	11	34.5	19.3	25.8	30.2	7.3	24.9	3.8	19.6	20.0	32.3	34.0	24.9	23.3	29.1	18.4	13.3
	12	34.3	18.3	25.2	32.2	6.8	24.3	4.5	18.3	20.7	32.5	33.0	23.1	22.0	28.1	17.3	13.5
	13	33.8	17.3	24.2	34.2	5.8	23.6	4.0	17.5	19.8	31.8	30.9	21.3	21.1	26.4	18.0	13.2
	14	33.4	17.6	21.5	31.5	4.6	22.8	3.3	16.8	19.0	31.2	29.3	20.3	20.6	25.0	17.6	11.2
	15	33.1	18.9	20.2	31.9	3.8	21.8	7.0	17.0	19.0	30.3	28.3	19.6	18.9	36.1	18.3	10.3
	16	33.1	18.1	19.9	32.8	2.8	20.8	9.0	16.4	18.0	30.8	30.5	18.5	19.7	39.7	18.0	10.3
	17	33.9	19.5	19.9	31.8	1.8	19.8	9.5	15.1	16.5	30.0	34.9	19.5	20.5	41.7	15.7	9.7
	18	35.3	22.3	22.9	30.8	1.5	18.5	9.5	14.3	15.3	28.8	37.0	19.0	19.0	40.6	15.8	9.3
	19	34.4	21.3	32.6	30.2	1.8	16.8	9.2	12.8	14.5	29.2	37.0	17.4	17.8	39.1	16.0	10.2
	20	32.8	20.9	35.7	30.2	1.3	15.5	8.8	16.8	12.2	27.2	35.6	16.5	16.5	37.3	16.0	9.7
	21	31.7	19.5	39.0	30.0	0.1	14.3	8.4	16.5	10.7	25.5	34.3	16.0	16.3	35.2	15.7	8.8
	22	30.9	18.3	39.2	28.8	-0.8	13.3	8.2	17.0	12.3	24.7	33.5	16.5	16.6	31.8	14.8	8.3
	23	30.7	19.3	42.8	25.5	-1.8	12.0	8.0	16.4	13.8	24.0	32.8	19.2	17.1	30.4	14.3	8.2
	24	30.7	19.0	43.8	24.0	-2.5	10.8	8.0	18.0	12.4	23.2	32.4	26.4	16.9	28.9	13.0	8.0
	25	29.8	16.9	42.0	22.0	-3.8	10.1	7.3	25.5	11.0	22.0	35.4	28.3	19.5	27.4	11.3	8.0
	26	31.1	16.8	40.0	20.2	-4.2	9.3	6.7	29.6	9.5	21.0	37.1	31.3	19.3	26.3	10.2	8.0
	27	32.8	15.5	38.7	19.7	-4.8	8.3	6.1	28.9	8.0	21.0	35.8	30.3	19.1	26.2	9.6	7.3
	28	32.2	14.3	36.5	17.9	-5.8	7.3	5.6	26.8	7.0	20.5	34.7	29.7	18.9	26.7	9.5	6.3
	29	32.2	14.8	33.0	16.8	-6.6	7.3	5.0	26.0	6.5	21.0	34.5	28.8	18.1	25.3	9.0	5.3
	30	32.7	13.5	31.4	17.8	-7.8	6.5	4.8	24.9	5.5	23.2	35.0	27.5	17.8	25.5	8.1	5.0
	31	33.2	13.5	30.3	17.3	-8.5	5.7	4.3	23.5	4.0	24.3	35.3	26.0	16.1	24.0	7.0	5.0

Appendix 11(cont'd)

Month	Day	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
August	1	32.8	12.3	28.8	17.0	-9.4	5.2	3.0	21.5	2.8	23.7	38.0	23.8	14.8	23.1	5.4	5.5
	2	33.1	13.1	29.5	17.5	-9.0	4.2	2.3	20.3	4.5	31.3	43.1	23.0	14.9	22.4	4.0	5.8
	3	33.5	15.3	31.7	16.3	-9.5	2.5	1.5	19.3	5.8	36.3	43.1	23.8	14.9	21.3	3.9	5.3
	4	33.9	14.0	32.8	14.8	-13.8	1.[illegible]	0.6	18.3	7.5	35.5	41.7	26.2	13.2	20.0	3.7	5.0
	5	33.7	13.3	29.8	16.6	-11.5	1	0.1	17.8	9.0	35.5	39.7	28.8	12.5	18.2	4.3	4.3
	6	33.1	13.7	28.8	15.5	-12.8	1.[illegible]	1.8	16.8	10.0	35.0	43.2	27.5	12.1	16.5	4.8	3.8
	7	33.7	13.8	31.7	14.0	-13.8	0.7	2.0	15.8	10.8	33.5	43.8	28.8	11.5	14.9	9.0	3.3
	8	34.3	12.8	30.5	12.7	-15.3	0.8	4.2	14.3	9.8	32.2	43.3	35.4	9.2	13.6	9.5	3.0
	9	33.3	14.3	29.3	12.0	-17.3	0.2	4.8	12.5	8.5	30.7	42.5	37.0	8.0	11.5	9.1	2.9
	10	32.9	13.3	28.2	13.0	-20.0	0.8		11.0	7.5	28.0	41.3	36.2	6.8	10.2	9.2	1.8
	11	34.5	12.3	27.8	13.3	-22.0	2.3	4.4	9.8	6.7	26.3	39.8	35.8	5.8	9.5	9.8	1.3
	12	35.4	19.7	26.2	13.3	-23.3	1.0	3.4	9.2	8.0	25.2	37.6	34.4	4.8	7.8	9.8	1.0
	13	35.6	20.2	27.5	12.9	-24.0	-0.5	2.9	8.3	7.0	23.7	35.8	32.0	3.8	9.0	9.0	2.3
	14	36.6	19.5	28.2	11.8	-31.1	2.0	3.3	7.8	5.4	22.7	33.9	30.1	6.3	8.8	9.1	3.3
	15	36.7	18.0	27.3	11.0	-26.2	2.7	5.5	9.3	8.8	21.5	32.3	27.0	13.2	8.0		2.8
	16	39.7	16.8	25.0	9.7	-25.3	1.5	5.0	8.8	4.2	19.7	31.0	26.3	11.5	6.8	7.9	2.0
	17	40.5	17.3	24.3	9.0	-28.0	-0.5	5.0	7.8	3.8	18.0	30.0	25.5	10.0	5.5	8.0	2.3
	18	41.5	20.5	23.5	8.2	-30.5	-1.5	4.7	6.8	2.5	17.0	27.8	24.3	9.3	5.2	8.6	2.7
	19	42.6	25.7	21.3	7.7	-27.3	0.8	4.8	6.2	2.3	17.5	25.8	23.0	8.3	4.2	8.8	3.3
	20	43.1	26.2	20.3	6.8	-28.0	0.3	4.5	5.8	7.0	18.8	25.5	22.0	6.2	3.3	9.0	11.7
	21	43.7	26.5	20.2	6.2	-28.2	-0.5	3.2	5.0	12.0	18.0	23.5	22.2	4.7	2.0	8.6	11.3
	22	47.0	28.2	20.3	5.3	-26.3	-1.2	2.3	3.8	11.8	20.5	21.5	21.0	6.8	1.3	8.1	9.8
	23	47.1	27.5	20.2	4.3	-26.8	-0.7	2.0	3.0	10.5	22.0	19.5	19.7	5.8	0.8	7.3	11.3
	24	50.7	26.3	22.3	3.8	-26.2	-2.2	2.3	1.8	9.5	20.8	17.5	18.5	5.8	0.2	6.6	15.0
	25	51.4	38.5	20.2	3.5	-27.5	-2.7	3.0	1.8	8.8	19.7	16.0	16.3	7.0	-0.7	6.2	13.5
	26	50.9	47.7	19.0	4.8	-28.3	-3.3	2.8	1.2	8.0	18.7	14.5	14.5	9.5	-1.5	5.2	13.7
	27	50.3	49.3	19.5	6.0	-29.2	-4.2	2.8	0.3	7.3	17.7	15.5	13.0	12.5	-2.5	4.0	17.0
	28	50.7	51.0	18.3	6.3	-30.2	-4.8	2.5		5.8	17.0	15.8	11.8	15.0	-3.7	4.3	19.0
	29	50.8	50.2	17.3	7.5	-31.2	-5.7	1.8	-0.7	4.8		16.8	10.0	13.8	-4.3	3.3	21.7
	30	49.9	48.3	19.7	8.7	-31.7	-4.7	1.5	-1.7	5.3		16.2	9.0	12.7	-2.8	3.3	25.8
	31	49.3	46.0			-32.7	-5.7	2.0	-3.0	9.0		15.8	7.7		-2.8	6.3	27.2
September	1	48.6	44.5			-33.2	-6.7	2.5	-3.8	11.3		15.2			-3.3	9.5	28.8
	2	50.0	42.5			-33.0	-7.5		-4.0	12.3		15.8			-4.3	9.3	28.3
	3	51.2	40.5			-32.7			-7.0	12.3		15.0			-5.0	8.3	27.3
	4	51.5	38.5			-33.7			-3.8	11.3						7.5	26.0
	5		35.0			-34.3			-4.2	10.3						12.0	
	6		32.3			-34.7			-4.8	9.3						15.8	
	7		31.5			-35.8			-5.7	8.8						18.2	
	8					-35.0			-6.5	12.0						17.8	
	9					-33.5			-7.0	20.3						17.3	
	10					-34.2		4.5	-7.7	20.8						18.3	
	11					-34.8			-7.5	20.3						19.7	
	12					-35.2			-7.7	18.8						20.3	
	13					-35.7				18.7						20.3	
	14					-36.0			-9.0	19.5						22.0	
	15					-35.0				19.5						20.8	
	16					-35.3				18.2						19.8	
	17					-25.0				17.5						18.8	
	18					-22.0				17.7						18.5	
	19									16.5						18.0	
	20									17.8						17.3	
	21															17.5	
	22															19.3	
	23															19.3	
	24															20.3	
	25															21.0	
	26																
	27																
	28								-2.7								

Appendix 12. Mean daily water levels (cm) measured near the fishway in Lower Terra Nova River, 1983-98.

Month	Day	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
June	1																93.0
	2																93.0
	3														69.0		92.0
	4														68.0		87.0
	5																94.0
	6														68.5		92.0
	7														69.0		94.0
	8														65.0		95.0
	9														68.0		93.0
	10														66.3		93.0
	11									73.8					62.0		91.2
	12								76.0	70.5				70.0	61.0	99.0	92.7
	13								74.0	70.0			93.0	69.0	61.7	95.0	96.0
	14							62.0	71.8	70.5		58.0	92.0	66.7	58.8		94.0
	15							65.5	70.8	69.2	95.0		90.0	72.3	59.0	97.3	92.0
	16					48.5		64.3		68.0	96.0		88.5	76.7	56.0	96.7	90.0
	17			54.0		47.5		60.2		66.7	100.0	55.0	88.2	78.3	55.0	93.0	90.0
	18					45.5		56.5	65.7	63.2	100.0	53.0	84.0	76.0	54.0	91.0	89.8
	19				48.5	45.7		54.5	62.2	62.2	99.3	52.7	80.0	82.3	55.0	88.0	87.3
	20	67.2		52.0	47.3	45.8		54.0	63.0	60.0	99.7	56.0	79.0	82.7	53.5	88.3	85.7
	21	64.3		52.5	45.2	45.8		53.0	81.0	58.0	99.3	54.7	76.0	84.0	58.5	83.0	80.7
	22	60.9			44.2	44.8		54.0	79.0	56.2	97.7	49.0	74.0	85.0	55.0	81.0	79.4
	23	61.8		48.0	43.2	44.2		52.7	83.5	55.2	95.3	44.7	86.3	82.3	54.0	80.0	80.0
	24		66.0	48.2	41.5	43.0		52.0	85.8	53.5	94.0	62.7	82.0	81.7	53.0	78.0	79.0
	25	57.3	61.5	44.5	41.0	44.7		52.0	87.0	51.8	92.7	60.0	83.0	80.3	52.0	80.0	77.0
	26	55.9	60.1	40.8	34.7	42.8		50.2	91.0	51.0	87.3	61.3	81.0	82.7	51.0	79.6	74.7
	27	54.5	56.8	40.0	33.3	41.2	58.0	50.3	93.0	48.0	84.7	61.0	81.3	83.0	53.0	80.4	68.7
	28	54.9	54.4	39.5	33.2	41.0	54.7	49.3	94.5	47.0	82.3	63.2	78.0	84.3	58.5	77.2	66.7
	29	54.6	50.1	37.3	32.5	40.2	53.7	50.0	94.0	44.2	78.7	68.0	79.3	76.0	57.7	78.8	66.1
	30	48.2	48.3	39.0	32.7	40.1	57.0	48.0	91.5	45.7	76.0	67.3	78.1	76.0	56.7	77.8	67.7
July	1	49.5	44.1	41.8	33.0	40.3	64.8	46.0	89.5	45.0	74.0	77.0	77.0	73.0	56.8	79.0	69.7
	2	47.0	42.6	37.0	35.5	36.0	67.0	44.9	88.2	42.0	72.0	79.2	72.0	72.7	59.2	76.7	71.0
	3	43.7	43.5	37.3	29.0	36.0	74.0	44.0	86.8	39.3	73.5	88.0	71.8	74.0	55.5	76.1	70.0
	4	43.1	41.7		28.0	35.1	75.0	43.6	85.2	24.1	69.7	88.5	68.4	74.7	65.9	76.5	62.4
	5	44.8	38.1	32.7	30.5	33.2	74.0	43.3	83.0	34.8	69.5	90.5	66.0	72.0	67.1	76.8	62.0
	6	41.7	36.9	29.5	27.7	32.1	79.3	43.0	81.0	33.8	66.7	93.8	66.3	69.8	74.5	81.7	65.3
	7	40.0	35.1	28.7	27.4	32.1	78.0	42.0	77.5	31.8	66.0	94.0	60.3	68.0	81.2	78.0	64.2
	8	47.5	37.4	28.0	27.1	31.3	80.0	42.0	75.8	32.2	66.7	94.7	58.8	64.7	84.7	70.0	63.0
	9	43.8	38.3	27.0	28.0	32.8	77.3	41.0	74.3	31.8	66.3	95.3	58.0	61.3	87.2	69.7	60.4
	10	41.6	34.2	26.2	28.4	31.7	76.3	40.8	72.9	31.2	66.2	94.0	57.2	61.0	90.3	69.3	55.0
	11	40.3	29.0	25.0	27.3	28.5	69.3	40.0	73.2	31.0	66.8	91.8	57.2	60.5	93.6	69.3	57.3
	12	37.5	26.4	24.3	30.5	28.1	72.8	40.0	69.5	29.8	66.0	88.8	58.7	58.0	93.5	66.8	54.0
	13	38.5	25.2	23.0	31.0	28.0	72.3	39.5	66.0	26.5	66.0	86.0	51.8	55.7	93.0	59.3	58.0
	14	35.9	25.5	21.9	29.2	27.6	65.3	39.8	64.5	26.3	65.4	83.0	51.5	56.0	93.0	60.5	58.3
	15	36.1	20.5	23.5	28.2	27.0	64.3	44.7	61.4	25.5	66.7	81.8	50.8	53.2	104.5	58.5	58.7
	16	37.1	19.7	16.3	27.2	26.7	59.0	45.2	57.5	24.8	66.6	81.0	49.8	50.7	107.8	56.8	57.1
	17	38.2	20.7	19.7	25.5	25.5	55.2	44.2	55.8	25.8	65.7	88.0	49.7	49.3	112.0	55.6	54.0
	18	49.7	21.3	19.8	26.5	24.1	52.2	43.5	53.8	21.0	63.4	87.8	48.0	48.0	115.5	55.5	54.3
	19	42.2	23.5	41.3	29.4	24.7	48.4	43.3	52.0	20.8	65.5	90.2	45.8	47.7	113.2	54.5	54.7
	20	34.4	24.5	45.0	28.8	23.3	46.5	46.0	54.3	19.6	65.0	93.0	43.7	49.3	113.2	53.7	53.0
	21	36.6	20.3	48.8	31.7	22.1	45.3	45.0	51.3	18.6	62.3	92.0	42.5	48.8	111.7	54.0	50.7
	22	39.1	21.0	55.8	34.8	21.0	42.2	46.6	48.0	20.4	63.0	91.3	46.0	54.3	107.8	48.9	49.7
	23	38.5	23.0	64.2	30.6	20.0	39.5	45.1	46.3	19.9	62.0	93.1	48.7	58.3	101.5	43.6	52.0
	24	42.2	23.0	74.4	32.3	19.8	35.6	44.7	47.4	18.8	61.7	90.7	53.0	59.5	96.3	40.8	48.0
	25	40.4	24.0	79.5	36.3	20.0	33.7	44.8	50.5	16.0	60.3	93.7	66.0	66.3	92.8	46.7	46.3
	26	42.4	23.4	78.1	30.7	19.9	30.5	45.2	52.0	15.3	59.0	94.7	71.8	70.5	89.2	46.4	47.0
	27	45.4	20.7	77.0	29.0	19.0	29.2	45.2	48.7	16.5	54.7	94.0	79.3	69.2	86.6	33.4	41.0
	28	46.3	19.6	72.3	27.5	19.1	28.3	45.0	48.2	15.8	52.3	93.5	83.3	69.2	89.2	37.3	39.3
	29	48.7	19.6	67.7	25.5	18.5	28.0	43.5	48.5	14.4	57.7	91.3	83.0	74.2	84.3	42.4	42.0
	30	51.3	19.8	63.7	30.3	17.0	25.1		47.2	11.5	56.5	88.0	85.0	75.8	84.3	39.3	42.0
	31	54.1	20.7	58.8	28.3	16.8	24.2	43.8	47.5	10.8	54.7	85.3	80.0	74.3	81.7	43.5	40.0

Appendix 12 (cont'd)

Month	Day	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
August	1	54.3	19.7	54.3	27.5	17.0	22.7	43.0	47.2	12.0	51.0	93.5	79.5	75.0	79.3	39.7	38.7
	2	58.7	17.2	45.9	30.8	15.3	22.2	42.2	44.3	11.0	63.0	94.5	78.5	73.2	77.9	37.3	37.7
	3	56.3	20.7	58.0	30.1	15.0	21.5	41.5	45.0	10.5	62.7	95.8	73.2	73.1	75.0	34.2	40.7
	4	58.7	20.0	53.1	28.9	15.2	19.0	41.0	44.8		65.0	98.3	75.3	73.3	73.7	34.3	37.7
	5	60.0	19.2	49.3	28.2	14.3	17.7	40.5	42.5	12.1	61.0	97.6	75.9	73.2	71.3	29.8	30.0
	6	63.0	17.2	46.4	28.5	13.7	15.8	43.2	42.5	10.7	62.7	99.0	75.3	72.2	68.6	36.7	30.0
	7	61.1	18.0	44.1	26.0	12.5	14.8	41.4	40.5	15.0	67.0	108.3	79.8	69.8	67.3	37.6	29.0
	8	62.5	17.7	41.5	25.2	12.5	14.0	46.3	39.8	15.0	65.2	110.0	85.2	69.5	64.7	41.8	30.3
	9	62.5	11.0	40.0	23.9	11.8	13.5	49.3	40.0	15.2	64.7	110.7	88.0	68.7	61.6	37.9	37.3
	10	64.5	12.5	36.9	23.4	11.5	11.8	43.0	40.0	15.5	64.2	110.5	91.8	65.1	57.2	38.4	42.7
	11	67.7	14.0	35.4	23.0	11.0	12.7	42.0	38.5	14.8	63.5	107.2	94.0	64.8	53.2	39.1	44.0
	12	63.9	12.5	32.2	22.5	9.5	12.0	41.5	37.5	15.7	63.3	104.7	93.1	66.3	52.0	39.3	42.0
	13	67.4	14.6	31.1	22.5	9.0	10.8	41.0	36.7	14.2	62.0	100.0	90.2	60.3	48.3	40.0	28.0
	14	82.0	15.5	30.3	21.8	9.0	10.2	41.8	34.2	15.5	59.5	94.5	86.7	65.2	46.3	35.3	26.3
	15	90.6	14.1	28.4	20.3	8.0	8.8	41.5	33.8	13.2	55.7	90.5	88.3	68.3	43.5	32.8	43.7
	16	94.4	14.7	24.1	19.6	7.7	7.0	41.0	34.0	12.3	55.7	91.0	82.8	74.7	40.4	32.0	42.3
	17	97.4	19.3	22.5	19.3	7.0	6.2	41.0	31.0	12.5	54.7	88.0	80.5	78.4	39.0	32.2	41.7
	18	99.5	31.3	21.0	17.8	6.5	5.0	41.0	30.5	14.2	50.3	83.0	76.0	82.4	37.4	37.5	39.7
	19	96.9	34.9	21.3	17.7	9.3	6.0	40.2	28.5	13.0	50.3	79.3	72.0	91.0	33.4	35.0	40.7
	20	95.8	40.8	20.3	17.0	6.0	4.5	40.0	29.8	12.0	50.3	78.3	69.0	98.7	29.5	30.0	35.0
	21	97.8	48.8	18.5	16.0	5.0	3.5	39.5	26.8	16.5	48.7	71.0	67.7	100.0	28.9	30.3	33.7
	22	107.5	58.7	17.7	15.0	6.0	4.2	38.8	27.8	13.5	46.7	68.7	68.7	97.3	26.7	28.5	30.7
	23	108.5	64.5	14.5	15.0	5.0	3.8	38.8	29.0	12.5	44.7	66.0	61.7	96.3	24.8	28.0	31.3
	24	109.7	65.1	20.0	14.3	5.0	3.0	38.5	20.7	10.0	46.7	63.7	61.0	95.4	23.8	28.0	33.0
	25	115.0	76.6	18.8	14.0	4.2	3.0	40.0	19.0	8.0	43.0	57.7	58.3	95.0	23.0	24.0	36.0
	26	121.8	95.0	17.7	13.5	3.5	2.0	38.2	18.2	7.7	42.0	60.0	57.5	95.8	22.0	25.0	33.0
	27	118.3	103.9	15.0	13.5	3.0	1.0	38.2	14.2	11.2	41.0	70.0	55.0	94.2	18.3	24.0	26.0
	28	116.3	106.8	13.0	13.0	2.0	0.3	38.0	13.0	7.3	40.0	61.0	53.0	92.8	17.7	24.2	26.7
	29	117.7	99.8	11.0	15.0	1.8	-0.5	37.5	12.2	4.3		64.3	50.0	92.2	16.2	26.0	31.2
	30	113.2	96.0			1.5	-1.5	37.5	14.0	6.3		65.3	49.8	88.8	23.0	24.0	27.0
	31	107.3	94.7	32.8		0.0	-2.5	37.0	12.0	11.0		59.5	47.0	85.5	15.8	23.0	28.3
September	1	102.7	87.1	37.5		1.0	-2.0	36.0	10.5	17.2		57.3	45.3	90.7	14.3	29.0	41.5
	2	109.3	78.8	42.3		1.5	-1.5		8.5	13.7		57.0			10.0	29.0	39.7
	3		76.7	47.3		1.7			7.5	17.0		56.0			7.0	28.0	35.3
	4		76.9	49.5		1.0			6.8	18.2					5.5	28.0	35.3
	5		72.0	51.5		1.0			7.7	19.0					4.0	39.9	35.0
	6		69.7	52.0		1.3			9.0	19.0					15.0	57.7	59.3
	7		72.0			1.0			8.0	18.0						58.0	74.3
	8		76.1			2.0			7.0	27.2						64.7	72.0
	9		79.8			2.0			6.3	42.0						71.0	77.3
	10		85.0			3.0			7.0	44.3						77.0	81.0
	11					2.0			8.0	40.7						92.3	86.3
	12					2.0			9.0	44.3						96.0	87.3
	13					1.5			6.8	47.2						103.0	89.3
	14					1.2			6.0	50.8						103.3	90.7
	15					1.0				52.7						103.0	89.7
	16					3.0				55.0						102.7	90.3
	17					3.0				57.7						99.3	103.0
	18									59.2						96.3	101.0
	19									57.0						93.7	
	20															93.0	
	21															90.3	
	22															88.7	
	23															85.0	
	24															83.3	
	25															82.0	
	26															78.0	
	27																
	28																

Appendix 13. Mean daily water levels (cm) measured near the counting fence in Northeast Brook (Trepassey), 1984-98.

Month	Day	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
April	1															
	2															
	3															
	4															
	5															
	6															
	7															
	8															
	9															
	10															
	11															
	12															
	13				32.0											39.0
	14				32.0											73.0
	15				32.0				29.0							60.0
	16				48.0				29.0							52.0
	17				36.0		34.0		29.0	28.0						39.0
	18				32.0	28.0	32.0	50.0	26.0	27.0						34.0
	19				31.0	30.0	38.0	35.0	26.0	27.0						44.0
	20				38.0	28.0	39.0	29.0	32.0	28.0			35.0	37.0		37.0
	21				33.0	38.0	38.0	26.0	39.0	28.0		46.0	31.0	32.0		39.0
	22			40.5	32.0	34.0	37.0	26.0	38.0	33.0	31.0	46.0	30.0	29.0	43.0	40.0
	23			39.5	31.0	35.0	61.0	28.0	33.0	33.0	30.0	37.0	29.0	27.0	41.0	36.0
	24			38.5	29.0	34.0	46.0	74.0	51.0	28.0	47.0	34.0	28.0	26.0	38.0	31.0
	25			38.0	31.0	27.0	38.0	42.0	49.0	26.0	37.0	31.0	27.0	26.0	38.0	47.0
	26			37.5	32.0	27.0	36.0	31.0	40.0	24.0	30.0	30.0	62.0	27.0	37.0	40.0
	27			37.0	29.0	26.0	35.0	31.0	35.0	40.0	29.0	29.0	48.0	25.0	31.0	43.0
	28			36.5	26.0	24.0	34.0	30.0	33.0	44.0	27.0	36.0	35.0	24.0	30.0	42.0
	29			36.0	25.0	24.0	32.0	29.0	38.0	34.0	37.0	37.0	31.0	25.0	29.0	43.0
	30			35.0	26.0	23.0	31.0	27.0	28.0	30.0	50.0	32.0	29.0	28.0	29.0	34.0
May	1			34.5	55.0	33.0	31.0	25.0	26.0	47.0	36.0	29.0	27.0	27.0	41.0	31.0
	2			34.0	36.0	30.0	31.0	24.0	26.0	48.0	33.0	29.0	26.0	25.0	50.0	29.0
	3			34.0	31.0	27.0	30.0	24.0	25.0	40.0	59.0	30.0	26.0	24.0	46.0	28.0
	4			35.0	31.0	64.0	35.0	37.0	34.0	77.0	37.0	29.0	25.0	23.0	43.0	27.0
	5			34.5	30.0	41.0	33.0	30.0	35.0	46.0	34.0	27.0	24.0	24.0	38.0	39.0
	6			38.0	27.0	33.0	34.0	27.0	33.0	39.0	31.0	36.0	24.0	45.0	56.0	37.0
	7			54.0	26.0	30.0	29.0	49.0	30.0	35.0	29.0	47.0	23.0	32.0	44.0	32.0
	8			45.0	27.0	41.0	26.0	42.0	37.0	33.0	29.0	44.0	23.0	28.0	39.0	29.0
	9			39.5	51.0	36.0	26.0	33.0	46.0	31.0	27.0	34.0	23.0	27.0	36.0	29.0
	10			38.0	81.0	30.0	25.0	28.0	36.0	95.0	35.0	41.0	23.0	25.0	41.0	39.0
	11			35.0	106.0	79.0	24.0	26.0	31.0	50.0	28.0	36.0	23.0	24.0	69.0	34.0
	12			34.0	44.0	43.0	23.0	26.0	28.0	37.0	27.0	37.0	22.0	44.0	43.0	28.0
	13			34.0	36.0	33.0	23.0	33.0	27.0	36.0	25.0	32.0	22.0	44.0	35.0	26.0
	14			32.0	31.0	29.0	23.0	27.0	27.0	31.0	24.0	60.0	21.0	41.0	34.0	25.0
	15			32.0	29.0	27.0	23.0	25.0	26.0	32.0	24.0	38.0	21.0	32.0	47.0	25.0
	16		54.0	31.0	28.0	27.0	22.0	24.0	26.0	31.0	24.0	45.0	21.0	50.0	36.0	24.0
	17		52.5	30.0	28.0	25.0	21.0	24.0	25.0	29.0	25.0	39.0	21.0	36.0	36.0	23.0
	18		54.0	29.5	32.0	24.0	21.0	24.0	24.0	28.0	26.0	35.0	20.0	30.0	49.0	30.0
	19		87.0	29.5	28.0	24.0	20.0	23.0	25.0	35.0	28.0	32.0	20.0	28.0	68.0	27.0
	20			30.0	27.0	23.0	20.0	31.0	25.0	35.0	31.0	30.0	21.0	26.0	47.0	25.0
	21			40.0	25.0	23.0	20.0	34.0	25.0	31.0	40.0	30.0	20.0	25.0	37.0	24.0
	22			42.0	24.0	23.0	20.0	29.0	24.0	27.0	38.0	28.0	20.0	28.0	33.0	23.0
	23		54.0	37.0	25.0	22.0	20.0	26.0	24.0	28.0	47.0	28.0	19.0	27.0	31.0	22.0
	24		55.0	35.0	27.0	23.0	20.0	27.0	24.0	26.0	51.0	27.0	21.0	26.0	29.0	22.0
	25			39.0	23.0	23.0	19.0	25.0	26.0	24.0	46.0	25.0	20.0	25.0	32.0	22.0
	26			41.0	23.0	22.0	20.0	24.0	51.0	24.0	36.0	25.0	20.0	24.0	31.0	22.0
	27			35.5	22.0	22.0	20.0	23.0	34.0	23.2	32.0	40.0	19.0	23.0	79.0	22.0
	28			33.0	22.0	22.0	21.0	23.0	30.0	23.0	31.0	35.0	19.0	23.0	43.0	23.0
	29			33.0	22.0	22.0	31.0	23.0	27.0	28.0	29.0	34.0	19.0	24.0	35.0	23.0
	30			33.0	22.0	21.0	27.0	22.0	53.0	25.0	25.0	30.0	18.0	23.0	33.0	21.0
	31		52.0	32.0	22.0	20.0	23.0	37.0	38.0	24.0	28.0	27.0	22.0	31.0	30.0	22.0

Appendix 13 (cont'd)

Month	Day	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
June	1		49.5	31.5	21.0	19.0	22.0	34.0	32.0	23.0	28.0	27.0	23.0	36.0	44.0	21.0
	2			31.0	21.0	30.0	23.0	30.0	28.0	24.0	25.0	27.0	21.0	31.0	39.0	74.0
	3		47.0	31.0	20.0	27.0	49.0	28.0	28.0	24.0	30.0	45.0	20.0	27.0	33.0	44.0
	4		47.0	43.0	20.0	28.0	41.0	24.0	26.0	23.0	27.0	46.0	22.0	24.0	29.0	34.0
	5		49.5	37.0	20.0	24.0	31.0	23.0	25.0	22.0	25.0	38.0	22.0	27.0	27.0	34.0
	6		64.0	35.0	19.0	50.0	30.0	80.0	28.0	21.0	24.0	33.0	20.0	33.0	26.0	29.0
	7		55.0	36.0	18.0	39.0	34.0	47.0	32.0	22.0	23.0	30.0	19.0	28.0	25.0	28.0
	8			35.0	22.0	33.0	25.0	40.0	28.0	25.0	46.0	34.0	19.0	26.0	25.0	26.0
	9			77.0	23.0	27.0	25.0	63.0	26.0	24.0	39.0	37.0	30.0	26.0	24.0	24.0
	10		105.0	59.0	22.0	25.0	24.0	42.0	24.0	25.0	35.0	33.0	30.0	24.0	23.0	24.0
	11		69.0	46.0	21.0	60.0	23.0	35.0	23.0	24.0	29.0	29.0	25.0	23.0	24.0	24.0
	12		60.0	38.0	21.0	38.0	23.0	31.0	23.0	23.0	26.0	31.0	22.0	23.0	23.0	23.0
	13		54.0	36.5	21.0	31.0	23.0	30.0	23.0	22.0	24.0	25.0	29.0	22.0	22.0	23.0
	14		51.0	35.0	68.0	32.0	23.0	27.0	23.0	21.0	24.0	25.0	34.0	22.0	23.0	23.0
	15			34.0	37.0	30.0	21.0	26.0	23.0	21.0	23.0	24.0	30.0	22.0	80.0	21.0
	16			33.0	33.0	27.0	21.0	26.0	23.0	34.0	23.0	23.0	40.0	22.0	48.0	21.0
	17		46.0	31.5	29.0	25.0	20.0	33.0	22.0	46.0	22.0	23.0	32.0	22.0	33.0	20.0
	18		60.5		26.0	24.0	20.0	45.0	21.0	31.0	21.0	22.0	26.0	21.0	30.0	20.0
	19	38.0	62.0	52.0	24.0	59.0	20.0	35.0	21.0	28.0	21.0	22.0	24.0	20.0	39.0	21.0
	20	39.0	62.0	43.0	23.0	37.0	40.0	36.0	21.0	25.0	24.0	23.0	24.0	21.0	40.0	21.0
	21			38.0	23.0	30.0	53.0	40.0	21.0	26.0	23.0	21.0	23.0	20.0	42.0	21.0
	22			36.0	22.0	30.0	37.0	53.0	21.0	25.0	22.0	21.0	21.0	20.0	33.0	21.0
	23			37.0	21.0	27.0	29.0	51.0	21.0	23.0	26.0	22.0	21.0	20.0	30.0	20.0
	24	56.0	46.0	35.0	21.0	27.0	28.0	31.0	20.0	22.0	30.0	22.0	21.0	19.0	29.0	19.0
	25	59.0	44.5	34.0	20.0	30.0	26.0	35.0	20.0	22.0	32.0	21.0	21.0	19.0	28.0	19.0
	26		42.0	34.0	20.0	26.0	23.0	44.0	19.0	21.0	27.0	20.0	20.0	19.0	26.0	19.0
	27	54.0	41.5	23.0	19.0	28.0	40.0	34.0	19.0	25.0	24.0	21.0	20.0	55.0	25.0	19.0
	28	64.0	40.0	22.0	19.0	30.0	29.0	30.0	19.0	25.0	23.0	20.0	19.0	34.0	25.0	20.0
	29	57.0	41.0	64.0	24.0	28.0	27.0	29.0	19.0	23.0	22.0	20.0	19.0	28.0	24.0	24.0
	30	52.0	70.0	45.0	30.0	58.0	24.0	27.0	23.0	22.0	24.0	20.0	19.0	25.0	24.0	27.0
July	1	47.0	59.0	37.0	26.0	61.0	24.0	40.0	21.0	22.0	53.0	20.0	19.0	24.0	23.0	22.0
	2	45.0	51.0	32.0	24.0	45.0	23.0	34.0	21.0	24.0	36.0	20.0	19.0	29.0	23.0	10.5
	3	42.0	47.0	29.0	22.0	36.0	22.0	29.0	20.0	33.0	29.0	20.0	20.0	41.0	22.0	50.0
	4	41.0	43.0	30.0	21.0	35.0	22.0	28.0	19.0	28.0	25.0	21.0	23.0	36.0	22.0	35.0
	5	41.0	42.0	27.0	21.0	31.0	21.0	27.0	17.0	24.0	95.0	20.0	22.0	60.0	23.0	30.0
	6	40.0	40.5	26.0	22.0	33.0	20.0	26.0	16.0	22.0	48.0	20.0	20.0	43.0	29.0	44.0
	7	40.0	38.5	32.0	21.0	31.0	19.0	26.0	16.0	40.0		20.0	18.0	38.0	24.0	48.0
	8	40.0	42.0	31.0	20.0	37.0		26.0	17.0	77.0	30.0	19.0	18.0	31.0	22.0	35.0
	9	40.0	49.0	28.0	19.0	31.0	46.0	24.0	17.0	46.0	32.5	19.0	17.0	28.0	22.0	30.0
	10	40.0	54.5	26.0	19.0	28.0	40.0	25.0	21.0	35.0	29.0	19.0	16.0	27.0	21.0	75.0
	11	40.0	49.0	25.0	19.0	61.0	38.0	46.0	20.0	62.0	28.0	19.0	14.0	28.0	22.0	46.0
	12	39.0	48.0	24.0	19.0	38.0	36.0	34.0	19.0	40.0	25.0	19.0	17.0	26.0	22.0	35.0
	13	39.0	48.0	23.0	19.0	31.0	34.0	28.0	19.0	34.0	24.0	19.0	20.0	25.0	21.0	32.0
	14	38.0	47.0	23.0	19.0	43.0	31.0	26.0	19.0	32.0	24.0	19.0	13.0	23.0	21.0	29.0
	15	36.0	40.0	21.0	19.0	34.0	42.0	25.0	19.0	29.0	30.0	18.0	19.0	43.0	21.0	27.0
	16	36.0	50.0	22.0	19.0	30.0	39.0	23.0	24.0	28.0	29.0	18.0	17.0	32.0	23.0	26.0
	17	35.0	48.0	21.0	18.0	28.0	31.0	23.0	21.0	28.0	40.0	47.0	18.0	40.0	20.0	25.0
	18	54.0	93.0	20.0	18.0	27.0	30.0	26.0	19.0	25.0	31.0	30.0	17.0		20.0	24.0
	19	42.0	63.0	19.0	18.0	28.0	39.0	24.0	19.0	24.0	29.0	25.0	16.0	29.0	20.0	51.0
	20	41.0	56.0	27.0	18.0	28.0	33.0	23.0	19.0	37.0	28.0	23.0	12.0	30.0	20.0	35.0
	21	39.0	49.0	27.0	18.0	28.0	29.0	23.0	19.0	29.0	25.0	24.0	44.0	33.0	20.0	29.0
	22	36.0	43.0	25.0	17.0	26.0	26.0	23.0	19.0	41.0	24.0	23.0	34.0	35.0	19.0	26.0
	23	36.0	41.0	31.0	17.0	36.0	25.0	22.0	24.0	36.0	68.0	22.0	29.0	31.0	19.0	25.0
	24	34.0	46.0	25.0	17.0	30.0	24.0	22.0	21.0	29.0	40.0	22.0	30.0	28.0	19.0	24.0
	25	38.0	39.5	23.0	17.0	26.0	23.0	27.0	19.0	28.0	47.0	21.0	44.0	27.0	19.0	24.0
	26	37.0	36.5	22.0	22.0	53.0	22.0	24.0	18.0	26.0	34.0	90.0	31.0	25.0	19.0	34.0
	27	34.0	34.0	21.0	20.0	41.0	21.0	23.0	19.0	26.0	29.0	46.0	28.0	24.0	19.0	27.0
	28	33.0	38.0	21.0	19.0	33.0	20.0	21.0	19.0	26.0	27.0	37.0	27.0	24.0	18.0	25.0
	29	44.0	35.0	21.0	18.0	31.0	23.0	19.0	19.0	46.0	25.0	30.0	24.0	24.0	19.0	24.0
	30	62.0	37.0	78.0	17.0	28.0	60.0	19.0	18.0	36.0	24.0	27.0	23.0	23.0	20.0	22.0
	31	58.0	52.0	63.0	16.0	26.0	40.0	18.0	17.0	29.0	24.0	26.0	50.0	22.0	19.0	23.0

Appendix 13 (cont'd)

Month	Day	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
August	1	43.0	43.0	58.0	16.0	24.0	34.0	18.0	17.0	26.0	25.0	24.0	34.0	22.0	19.0	23.0
	2	40.0		41.0	18.0	25.0	26.0	20.0	19.0	28.0	27.0	23.0	30.0	22.0	18.0	30.0
	3	39.0	61.0	41.0	18.0	24.0	24.0	20.0	18.0	44.0	24.0	22.0	26.0	32.0	18.0	25.0
	4	38.0	48.0	32.0	18.0	23.0	23.0	20.0	18.0	33.0	23.0	24.0	24.0	32.0	19.0	23.0
	5	37.0	43.0	50.0	19.0	23.0	23.0	19.0	17.0	28.0	23.0	34.0	23.0	26.0	19.0	22.0
	6	37.0	37.5	37.0	19.0	23.0	23.0	19.0	18.0	38.0	23.0	28.0	22.0	24.0	23.0	21.0
	7	36.0	37.0	29.0	19.0	22.0	22.0	60.0	18.0	32.0	22.0	26.0	22.0	23.0	58.0	20.0
	8	35.0	37.0	27.0	18.0	22.0	23.0	37.0	18.0	28.0	24.0	25.0	21.0	22.0	34.0	20.0
	9	35.0	41.0	25.0	17.0	22.0	23.0	30.0	17.0	26.0	44.0	36.0	21.0	21.0	25.0	20.0
	10	34.0	38.0	31.0	17.0	22.0	23.0	27.0	15.0	24.0	31.0	78.0	21.0	21.0	26.0	20.0
	11	34.0	36.0	29.0	17.0	22.0	21.0	23.0	14.0	24.0	26.0	45.0	20.0	23.0	25.0	20.0
	12	34.0	33.0	26.0	17.0	21.0	21.0	23.0	15.0	23.0	25.0	34.0	20.0	22.0	23.0	19.0
	13	38.0	33.0	24.0	16.0	21.0	20.0	22.0	30.0	24.0	24.0	30.0	22.0	21.0	21.0	24.0
	14	44.0	33.0	23.0	16.0	21.0	20.0	34.0	22.0	23.0	23.0	26.0	23.0	21.0	20.0	23.0
	15	38.0	30.5	23.5	16.0	32.0	21.0	51.0	19.0	22.0	22.0	28.0	21.0	36.0	21.0	21.0
	16	36.0	30.0	23.0	16.0	25.0	20.0	44.0	19.0	21.0	23.0	27.0	21.0	26.0	20.0	20.0
	17	33.0	29.5	22.0	16.0	23.0	22.0	36.0	18.0	21.0	22.0	24.0	21.0	23.0	20.0	20.0
	18	34.0	29.5	21.0	16.0	53.0	22.0	29.0	18.0	22.0	21.0	23.0	21.0	28.0	23.0	
	19	60.0	29.0	21.5	17.0	44.0	20.0	27.0	17.0	22.0	21.0	24.0	20.0	23.0	22.0	22.0
	20	70.0	28.5	21.0	17.0	33.0	20.0	30.0	17.0	26.0	21.0	24.0	19.0	22.0	20.0	25.0
	21	55.0	30.5	25.0	16.0	27.0	19.0	27.0	19.0	24.0	21.0	23.0	19.0	21.0	20.0	23.0
	22	72.0	30.0	22.0	17.0	26.0	46.0	24.0	18.0	22.0	23.0	22.0	24.0	21.0	19.0	21.0
	23	58.0	50.0	19.0	17.0	24.0	34.0	24.0	20.0	22.0	28.0	24.0	33.0	21.0	18.0	20.0
	24	43.0	53.0	21.0	28.0	24.0	28.0	23.0	21.0	21.0	25.0	29.0	25.0	21.0	25.0	19.0
	25	48.0	39.5	20.0	28.0	23.0	42.0	22.0	19.0	20.0	22.0	25.0	25.0	22.0	24.0	29.0
	26		36.0	21.0	20.0	22.0	36.0	22.0	18.0	20.0	23.0	24.0	44.0	23.0	21.0	85.0
	27	56.0	31.0	20.0	18.0	22.0	32.0	22.0	17.0	20.0	30.0	23.0	34.0	21.0	21.0	42.0
	28	50.0	31.0	20.0	17.0	22.0	27.0	21.0	17.0	20.0	25.0	22.0	28.0	20.0	20.0	33.0
	29	47.0	31.0	30.0	17.0	21.0	25.0	25.0	16.0	25.0	23.0	22.0	25.0	19.0	20.0	29.0
	30	44.0	36.0	35.0	17.0	21.0	24.0	28.0	15.0	24.0	21.0	24.0	24.0	51.0	31.0	28.0
	31	43.0	36.0	28.0	16.0	21.0	24.0	26.0	15.0	25.0	21.0	22.0		33.0	52.0	27.0
September	1	42.0	36.0	24.5	16.0	22.0	40.0	25.0	15.0					26.0	35.0	35.0
	2	43.0	65.0	23.0	16.0	21.0	31.0	23.0	16.0					24.0	29.0	
	3	44.0	46.0	22.0	18.0	20.0	33.0	23.0	16.0					23.0	25.0	
	4	42.0	39.0	21.0	17.0	20.0	30.0	21.0	14.0					23.0	25.0	
	5	40.0	36.0	21.0	17.0	19.0	25.0	21.0	14.0					22.0	24.0	
	6	40.0	34.5	20.5	17.0	45.0	23.0		15.0						47.0	
	7	54.0	41.5	20.0	16.0	33.0	23.0		14.0						33.0	
	8		37.0	20.0	16.0	27.0	23.0		18.0						29.0	
	9	59.0	46.0		16.0	27.0	23.0		32.0						60.0	
	10	48.0	45.5		16.0	23.0	22.0		25.0							
	11		39.5		16.0	27.0	21.0		23.0							
	12				16.0	35.0			24.0							
	13		45.5		15.0	28.0			22.0							
	14				15.0				21.0							
	15				15.0				20.0							
	16				37.0				19.0							
	17				26.0				18.0							
	18				23.0				32.0							
	19				20.0											
	20				20.0											
	21				19.0											
	22				18.0											
	23				17.0											
	24				18.0											
	25				17.0											
	26				19.0											
	27				19.0											
	28				19.0											
	29				18.0											
	30				18.0											

Appendix 13 (cont'd)

Month	Day	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
October	1				18.0											
	2				34.0											
	3				28.0											
	4				46.0											
	5				34.0											
	6				34.0											
	7				29.0											
	8				27.0											
	9				39.0											
	10				42.0											
	11				32.0											
	12				28.0											
	13				26.0											
	14				25.0											
	15															

Appendix 14. Mean daily water levels (cm) measured near the fishway in Northeast River (Placentia), 1983-98.

Month	Day	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
June	1																
	2																
	3																
	4																
	5																
	6																
	7																
	8																
	9																
	10															18.0	
	11									24.0						18.0	
	12									24.0						17.0	
	13									24.7						16.8	27.3
	14									26.0				32.5		16.8	26.5
	15					19.0				24.0		16.0		41.3		30.0	25.0
	16					18.8	25.8	15.7		23.0		16.0	23.0	36.0		28.7	23.5
	17			23.0		18.5	25.3	14.7		22.2		15.8	22.0	32.0		26.8	20.0
	18			25.0	28.0	18.0		13.8	33.5	19.3	16.0	14.8	20.8	29.3		18.5	16.5
	19			24.0	26.7	17.0		19.3	33.0	19.0	16.0	14.4	20.5	29.3		23.7	15.2
	20	31.0	22.0	25.0	24.7	17.0	30.7	21.7	32.7	19.7	15.0	16.2	20.0	29.7	22.0	39.3	27.0
	21	31.0	25.5	23.8	23.0	17.0	29.0	21.3		18.7	16.0	15.3	19.0	28.5	22.0	30.3	25.0
	22	29.3	27.0	23.5	22.8	17.0	26.7	19.7	26.0	17.0	14.0	15.3	18.8	26.7	19.2	28.0	24.7
	23	28.5	25.0	23.0	22.8	17.0	26.7	18.7	46.0	16.0	14.5	20.2	18.8	25.2	19.0	25.5	23.8
	24	27.7		22.5	19.2	15.5	30.3	18.0	44.0	16.0	14.0	25.3	18.0	24.0	19.0	25.0	22.3
	25	33.6	22.5	22.0	22.0	15.5	27.0	17.3	45.7	16.0	14.0	26.8	17.0	22.5	18.2	26.9	18.7
	26		21.8	21.2	21.3	16.0	25.0	18.7	43.7	15.0	13.0	25.2	16.7	22.3	18.3	24.4	17.0
	27	27.2	22.0	21.0	20.8	16.0	31.7	19.7	38.3	15.0	13.0	25.0	16.5	21.7	21.2	21.8	19.0
	28	27.8	22.0	20.8	20.0	16.0	36.7	18.7	33.0	14.0	13.0	23.8	16.0	20.0	20.7	21.8	19.0
	29	26.	21.3	20.3	30.7	16.0	40.0	17.7	32.0	14.0	13.0	24.5	15.7	20.0	20.3	21.3	19.0
	30	24.4		24.6	23.8	15.5		17.0	29.0	16.7	13.0	30.5	16.0	20.0	19.5	19.5	18.0
July	1	24.2		24.2	22.2	15.5		16.3	28.0	16.0	14.0	38.0	17.0	19.0	21.2	20.0	16.5
	2		21.0	23.0	21.0	15.0		17.0	26.7	16.0	15.3	31.5	16.8	18.5	35.3	18.8	23.2
	3		20.3	22.5	22.4	15.0		17.0	25.2	16.0	17.7	28.5	16.8	22.6	54.0	18.1	24.0
	4	25.1	20.0	22.0	21.9	14.0	43.0	15.8	24.0	15.3	17.0	26.7	18.8	24.4	35.3	15.2	24.0
	5	23.4	20.0	21.9	20.6	15.0	39.3	14.7	24.0	14.7	16.0	34.5	18.0	23.2	30.7	20.3	23.3
	6	22.7	20.0	20.8	21.0	17.0	36.0	14.5	19.7	14.0	18.8	32.7	18.0	20.5	35.1	19.7	28.8
	7	23.1	19.5	20.5	20.4	16.7	36.7	14.7	18.0	13.7	22.0	29.2	17.5	18.9	30.8	18.6	27.0
	8	30.0	19.3	22.8	18.5	15.7	27.7	20.3	19.0	13.0	28.0	27.2	17.5	18.5	29.3	17.1	25.6
	9		19.0	26.0	18.4	15.0	34.3	20.7	19.0	13.3	26.7	26.8	17.6	17.5	27.0	17.0	27.7
	10		18.7	25.5	18.5	14.8	30.7	19.0	18.0	14.0	27.3	25.7	17.0	16.8	26.7	16.5	35.0
	11	27.5	19.5	24.5	18.0	14.0	28.3	20.3	18.7	14.0	31.0	25.2	15.9	17.0	26.7	16.8	33.0
	12	27.1	19.0	25.5	18.0	14.0	27.0	22.3	18.0	13.7	29.0	24.0	16.3	17.9	25.0	17.0	31.0
	13	27.1	18.5	25.0	17.6	14.0	24.0	20.7	17.3	13.0	27.0	22.2	15.7	16.7	23.2	16.5	28.7
	14	26.7	18.1	24.0	18.0	14.0	22.7	19.0	17.0	13.0	26.0	21.3	15.5	16.1	33.9	16.0	26.3
	15	26.8	18.1	23.3	18.3	13.5	20.0	21.3	17.0	13.5	24.7	20.7	15.0	15.4	41.0	18.5	26.0
	16		18.0	23.7	18.4	13.5	20.0	19.3	16.0	14.7	24.0	24.2	15.7	15.8	33.7	19.3	26.7
	17		18.5	24.0	18.0	13.5	20.0	19.7	14.7	14.7	22.3	25.3	23.6	15.5	35.0	17.2	26.0
	18	29.9	19.0	30.5	17.4	13.5	20.0	21.3	15.7	14.0	20.7	23.5	22.4	14.2	31.3	16.4	26.0
	19	28.3	18.5	39.0	17.0	13.5	19.7	19.0	17.0	14.0	21.0	24.5	21.2	14.0	29.2	17.3	34.3
	20	27.5	18.5	43.5	21.3	13.5	22.0	18.0	15.7	13.3	26.0	23.0	20.2	34.7	29.0	16.8	30.5
	21	27.1	18.0	42.5	22.6	13.0	21.7	17.7	16.0	13.0	22.7	20.8	19.8	30.0	28.2	16.0	28.3
	22	25.7	18.0	39.3	20.8	13.0	20.0	18.0	16.0	20.7	20.7	21.3	19.4	29.0	27.0	15.5	28.0
	23		17.8	34.3	20.0	13.0	19.7	17.0	15.0	18.0	18.7	28.2	19.3	27.5	26.5	15.6	27.3
	24		18.3	31.1	19.8	12.0	18.7	16.7	15.0	17.7	17.7	26.2	19.8	26.2	25.2	16.0	29.0
	25	29.6	19.0	28.8	18.8	12.7	18.0	15.3	15.7	17.0	17.7	27.2	20.2	28.5	23.5	15.5	29.7
	26	31.1	18.5	27.2	18.0	13.0	18.8	15.0	14.0	16.0	15.7	24.5	22.4	27.0	23.0	14.5	30.0
	27	31.6	18.0	27.0	17.5	15.0	20.7	14.0	14.0	16.0	15.0	23.0	22.1	26.0	22.5	14.8	28.5
	28	30.5	18.0	25.8	19.2	16.3	18.7	14.0	13.7	17.0	15.0	20.5	21.7	26.2	23.2	14.0	26.5
	29	29.9	18.5	24.7	18.5	15.0	19.0	15.3	13.5	16.8	18.7	19.2	21.5	24.5	23.0	15.5	25.7
	30		18.0	24.7	20.7	15.0	19.0	17.0	13.0	15.8	18.0	19.0	21.0	23.2	22.0	15.8	24.7
	31		17.8	23.8	21.0	15.0	18.7	15.0	11.3	15.0	16.8	19.8	21.0	23.5	21.3	14.6	24.5

Appendix 14 (cont'd)

Month	Day	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
August	1	29.5	17.5	23.4	19.7	14.0	19.0	15.0	10.5	15.0	16.0	28.0	20.5	22.8	20.2	14.0	25.2
	2	28.5	17.5	25.9	20.7	14.0	19.0	14.0	11.0	16.0	16.3	29.8	20.2	21.4	20.0	14.0	24.5
	3	31.8	17.3	26.5	19.8	16.0	19.0	14.0	10.7	16.0	15.8	27.4	19.4	20.3	20.3	13.5	23.7
	4	30.7	17.5	24.5	19.0	16.0	18.0	13.7	11.0	15.7	15.2	24.2	24.8	19.8	19.7	13.5	23.0
	5	30.1	17.0	23.3	19.9	15.3	17.7	13.0	10.0	15.0	14.0	22.0	25.7	18.3	19.0	13.2	22.0
	6		17.0	22.8	19.3	14.0	17.0	13.0	10.0	15.3	16.0	22.7	23.5	17.6	17.2	15.0	20.8
	7		16.5	22.0	18.3	14.0	16.0	19.0	12.0	15.0	14.7	21.8	22.8	16.5	16.5	15.8	19.8
	8	28.4	16.5	21.5	18.0	13.0	15.8	23.0	11.7	14.3	13.7	24.0	22.5	16.0	16.5	15.3	19.5
	9		16.0	21.0	17.5	12.8	15.7	28.3	11.0	14.0	13.0	24.5	24.9	15.1	16.0	14.5	19.0
	10	28.1	16.0	20.7	19.3	12.5	15.0	30.0	11.0	14.0	13.0	23.0	28.0	14.0	16.0	15.5	18.2
	11	29.9	16.0	20.8	18.5	12.5	15.0	26.0	10.5	13.5	13.2	21.2	26.7	14.4	26.0	15.2	17.2
	12	28.4	17.3	21.0	19.1	12.5	14.3	21.7	10.0	14.2	14.0	18.7	25.3	14.0	24.7	14.2	16.8
	13		22.1	21.0	18.2	12.0	14.0	21.0	12.0	15.0	14.0	17.5	24.3	14.1	23.3	13.8	20.3
	14		21.5	20.3	17.3	12.0	16.7	22.0	12.0	14.7	14.0	17.0	23.6	17.2	22.7	13.5	20.8
	15	29.6	19.2	19.8	17.0	12.0	19.0	21.7	23.0	13.8	13.5	19.2	22.0	16.0	27.2	13.8	17.7
	16	29.4	18.8	19.5	16.8	12.0	18.7	22.0	20.0	13.7	13.0	18.0	22.5	15.3	23.8	14.7	17.3
	17	36.5	18.0	19.5	16.4	12.0	18.0	22.0	18.8	14.0	13.0	16.5	21.5	15.8	22.5	14.0	16.3
	18	34.1	19.8	19.0	16.0	12.0	20.7	19.7	18.0	14.0	13.0	16.0	20.5	14.8	23.3	13.8	16.0
	19	32.3	29.4	18.8	15.8	12.0	19.7	19.0	18.0	14.0	14.7	15.8	19.8	13.2	22.7	13.5	30.3
	20		28.5	18.5	15.7	12.0	17.7	18.0	17.2	19.3	15.3	15.3	19.5	13.0	21.5	13.5	30.3
	21		25.7	19.0	15.8	12.0	16.7	18.3	15.0	22.0	14.7	15.0	19.0	12.0	19.5	13.7	24.8
	22	37.6	23.3	18.5	15.3	11.7	19.3	19.7	14.0	20.0	14.7	15.7	19.3	14.2	18.5	12.0	24.0
	23	36.1	23.0	19.2	15.0	11.2	19.7	19.0	14.0	19.7	16.0	15.3	22.0	14.0	16.8	12.0	23.8
	24	34.7	22.5	20.0	14.8	20.0	18.0	20.7	14.0	18.0	15.0	14.8	21.7	14.0	16.5	12.8	22.5
	25		39.2	19.1	14.8	18.7	17.0	26.7	13.5	18.0	14.3	14.0	20.8	16.8	28.0	12.0	22.8
	26	33.1	33.3	18.5	14.8	15.3	17.0	26.3	13.0	18.0	14.0	14.2	19.8	20.0	24.5	12.0	34.3
	27		29.3	18.5	14.0	14.7	17.0	26.0	11.7	17.5	13.0	14.5	18.8	20.0	22.5	12.0	33.3
	28		27.8	18.0	14.5	14.0	16.7	26.0	10.2	17.0	13.0	14.0	18.3	19.5	19.7	12.0	29.0
	29	33.7	26.7	19.0	16.0	13.3	16.0	25.3	17.5	17.0		13.5	18.3	18.5	27.8	12.0	25.8
	30	32.8	26.0	21.8		13.3	16.0	24.7	17.0	15.5		13.5	17.8	16.8	37.7	22.3	26.5
	31	31.8	25.0	21.7		13.0	20.0	25.0	22.0	16.0		13.2	16.8	22.3		28.0	23.7
September	1	31.6		23.8		12.8	20.0	27.0		16.3		13.0	16.3	27.0		26.7	21.7
	2	41.0		25.0		14.2	19.0			16.5		12.8	16.0		24.5	24.8	20.3
	3			22.8		18.0				16.0		12.5			21.7	22.8	20.0
	4			21.8		17.0				15.7					21.0	23.8	20.0
	5			21.0		18.0				15.0					20.8	38.0	
	6			21.5		18.0				15.0					21.0	34.0	
	7					18.0				15.0						29.0	
	8					18.0				20.0						28.0	
	9					18.7				23.3						29.3	
	10					17.0				20.2						38.0	
	11					16.7				20.0						31.5	
	12					14.0				18.0						29.5	
	13					13.0				20.0						27.8	
	14					13.0				19.7						26.0	
	15					15.0				19.0						25.0	
	16					17.5				18.7						24.5	
	17					18.0				18.0						22.8	
	18					28.5				18.0						21.8	
	19									18.0						20.8	
	20															20.0	
	21															19.8	
	22															18.8	
	23															16.8	
	24															16.8	
	25															15.8	
	26															15.0	
	27																
	28																